ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT

VERITEK

For

MERCURY NZ LIMITED

Prepared by: Rebecca Elliot and Tara Gannon

Date audit commenced: 10 April 2018

Date audit report completed: 24 April 2018

Audit report due date: 28 May 2018

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of **Mercury NZ Limited (Mercury),** 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

This audit evaluated the codes MRPL for HHR activities and MEEN for both NHH and HHR activities. Findings relate to both codes unless specifically stated otherwise.

The audit found Mercury has addressed a number of issues identified in the previous audit, and has identified additional issues in relation to switching and registry management.

The audit found 34 non-compliance issues, three recommendations are made and no issues are raised. Ten of the non-compliance issues relate to switching (consistent with the 2017 audit), and nine relate to registry management and new connections (a reduction from ten in the 2017 audit). There is an overall reduction in the number of non-compliances (from 35 to 34) and significant reduction in recommendations (from 9 to 3) when compared to the previous audit.

I note that the Authority is undertaking an end to end operational review of the switching process, which may result in changes to the switching requirements for participants. Resolution of some non-compliances relating to switching is on hold pending the outcome of the EA's review.

The highest priority non-compliances relate to management of standard unmetered load over 6,000 kWh pa and distributed unmetered load, and some automated SAP processes which are leading to incorrect information being populated in SAP and on the registry.

The key unmetered load issues identified are:

- Mercury have switched in some historic telco unmetered load which is above the 6,000 kWh threshold. The load has not been verified as there is no database associated with it. Mercury are working to resolve this by either creating a database for the load, or ICPs to account for the items of load.
- Six of the nine DUML databases contain errors which affect submission, and one DUML ICP has a database with insufficient data for it to be audited.

The automated process issues identified are:

- the meter removal process is triggering incorrect backdates of disconnected ICPs to active in SAP and subsequently the registry
- the completing of incomplete tasks on disconnected ICPs is triggering incorrect backdates of disconnected ICPs to active in SAP and subsequently the registry
- one example of an incorrect backdate to reconnected with no activity on the account to indicate why the automated update had occurred
- the sending of an AW file triggering a bogus MEP nomination
- the transposing of register reads in the CS file for ICPs with two register meters.

These are detailed in the report. I note that Mercury upgraded the SAP platform in November 2017. There were no changes to process made as part of this platform upgrade. I recommend that the automated processes be tested to confirm that they are producing the expected results.

Improvements in other areas were observed, including:

- Correction of the historic estimate logic for a scenario that was previously calculated incorrectly. Submission review processes have improved and continue to be refined.
- I found most corrections to reconciliation data had been appropriately processed. A small number of corrections were not processed accurately, these errors appear to be due to training and human error.

- Read attainment processes have improved, and further improvements will be implemented in May 2018. The new process will generate emails, texts, and letters to customers whose ICPs have not received reads for three months or six months. The process to change ICPs between AMI and manual meter reading routes will also become more automated. These changes are expected to further improve meter read attainment.
- The area of MEP management and ANZSIC code management has improved during the audit period.
- Shared unmetered load continues to be managed well.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and contains a future risk rating score of 104, which results in an indicative audit frequency of three months. This is an increase from the previous audit's score of 77, largely due to higher risk ratings and weaker control ratings because some automated switching and registry management processes are not functioning as expected.

I have considered this result in conjunction with Mercury's responses. Taking into consideration that almost half (17) of the non-compliances have been cleared or corrective actions have been identified, and that resolution of some switching non-compliances is awaiting the outcome of the EA's review of the switching process, my recommendation for the next audit date is in seven months.

The matters raised are shown in the tables below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Relevant information	2.1	10.6,11.2 & 15.2	Some registry discrepancies, and one example of misleading information.	Moderate	Low	2	Investigating
Temporary Electrical Connection of an ICP	2.10	10.33(1)	One ICP was temporarily electrically connected where Mercury was not recorded as the responsible participant in the registry.	Weak	Low	3	Investigating
Electrical Connection of Point of Connection	2.11	10.33A	73 ICPs electrically connected where Mercury was not recorded as the responsible participant in the registry. 3 ICPs not certified within five business days of electrical connection. 89 ICPs not certified within five business days of electrical reconnection.	Weak	Low	3	Investigating
Changes to registry information	3.3	10 of schedule 11.1	Registry not updated within 5 business days of the event for MEP changes, reconnections, and disconnections.	Weak	Medium	6	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Trader responsibility for an ICP	3.4	11.18	The sending of erroneous MEP nominations when an AW file is sent.	Weak	Low	3	Investigating
Provision of information to the registry manager	3.5	9 of Schedule 11.1	Registry information not provided within 5 business days of commencement of supply.	Moderate	Low	2	Investigating
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	390 ICPs active ICPs with no or "Don't know" ANZSIC codes assigned. 11 of 40 industry coded ICPs checked had an incorrect ANZSIC code.	Weak	Low	3	Identified
Changes to unmetered load	3.7	9(1)(f) of Schedule 11.1	Incorrect unmetered load is recorded for five ICPs	Moderate	Medium	4	Investigating
Management of "active" status	3.8	17 Schedule 11.1	Four newly connected ICPs with incorrect active dates. Disconnected ICPs being incorrectly updated to active in the registry.	Weak	Medium	6	Investigating
Management of "inactive" status	3.9	19 Schedule 11.1	One ICP incorrectly at "inactive - new connection in progress" status.	Strong	Low	1	Cleared

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 & 4 of schedule 11.3	Incorrect sending of the AA AN response code for two ICPs with AMI metering for transfer switches. 16 late AN files.	Moderate	Low	2	Identified
Losing trader must provide final information - standard switch	4.3	5 of schedule 11.3	Incorrect last read date for ICPs that close on an estimate. SAP transposing reads in the CS file for meters with two registers. Actual read not sent for the event date. Some late CS files.	Weak	Medium	6	Identified
Retailers must use same reading - standard switch	4.4	(1) and 6A Schedule 11.3	11 late RR files and one late AC file sent. In some cases where a high switch reading is provided, and an RR is not issued, Mercury will modify the switch reading to match their first actual reading.	Moderate	Low	2	Identified
Losing trader provides information - switch move	4.8	10 of schedule 11.3	Incorrect sending of the AA AN response code for sites with AMI metering for move switches. Six late AN files.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Losing trader determines a different date - switch move	4.9	10(2) Schedule 11.3	15 ICPs where the event date was set earlier than the gaining traders requested date 1 ICP where the event date was set greater than ten business days from the NT receipt date.	Moderate	Low	2	Investigating
Losing trader must provide final information - switch move	4.10	11 of schedule 11.3	Incorrect last read date for ICPs that close on an estimate. SAP transposing reads in the CS file for meters with two registers. Actual read not sent for the event date.	Weak	Medium	6	Identified
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	One RR sent without two validated reads being gained. 33 late RR files and one late AC file sent. In some cases where a high switch reading is provided, and an RR is not issued, Mercury will modify the switch reading to match their first actual reading.	Moderate	Low	2	Identified
Losing trader provision of information - gaining trader switch	4.13	15 Schedule 11.3	Four late ANs.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Gaining trader to advise the registry manager - gaining trader switch	4.14	16 of schedule 11.3	Seven late CS files.	Moderate	Low	2	Identified
Withdrawal of switch requests	4.15	17 & 18 of schedule 11.3	58 switch withdrawals sent later than 2 months of the event date. 2 switch withdrawals not resolved within ten business days.	Moderate	Low	2	Identified
Unmetered threshold	5.2	10.14 (2)(b)	Nine standard unmetered ICPs with greater than 6,000 kWh per annum.	Weak	Medium	6	Investigating
Unmetered threshold exceeded	5.3	10.14 (5)	Nine ICPs with greater than 6,000 kWh per annum not corrected within the required timeframe.	Weak	Medium	6	Investigating
Distributed unmetered load	5.4	11 Schedule 15.3, Clause 15.37B	Errors found in eight databases. The specific findings are detailed in the DUML database audit reports.	Weak	High	9	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Electricity conveyed & notification by embedded generators	6.1	10.13	While meters were bridged, energy was not metered and quantified according to the code for nine ICPs. NHH ICPs with distributed generation do not have the PV1 profile recorded on the registry.	Moderate	Low	2	Identified
Responsibility for metering at GIP	6.2	10.26 (6), (7) and (8)	Three meter certification expiry dates were updated late.	Weak	Low	3	Investigating
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	The best endeavours requirement was not met for eight ICPs unread during the period of supply.	Weak	Low	3	Identified
Correction of NHH meter readings	8.1	19(1) Schedule 15.2	One correction for a bridged meter and three corrections for defective meters were not processed correctly due to a calculation errors.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
NHH metering information data validation	9.5	16 Schedule 15.2	Where a subsequent reading is lower than a switch in reading, consumption may be temporarily zeroed out by creating a zero estimate until reads catch up, or permanently zeroed out by adjusting the switch in read to match the first actual read after switch in.	Moderate	Low	2	Identified
Electronic meter readings and estimated readings	9.6	17 Schedule 15.2	AMI event information not adequately obtained and monitored.	Moderate	Low	2	Investigating
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	Disputed
Accuracy of submission information	12.7	15.12	One correction for a bridged meter and three corrections for defective meters were not processed correctly due to a calculation errors.	Moderate	Low	2	Investigating
Permanence of meter readings for reconciliation	12.8	4 of Schedule 15.2	Some estimates were not replaced by revision 14.	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Forward estimate process	12.12	6 Schedule 15.3	The accuracy threshold was not met for all months and revisions.	Moderate	Low	2	Identified
Historical estimate reporting to RM	13.3	10 of Schedule 15.3	Historic estimate thresholds were not met for some revisions.	Moderate	Low	2	Disputed
Future Risk Rating						104	

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	Relevant information	Test automated processes to confirm that they are producing the expected results.
Temporary Electrical Connection of an ICP	2.10	Temporary Electrical Connection of an ICP	Use the "inactive - new connection status" to ensure that Mercury is recorded as the responsible participant in the registry.
Electrical Connection of Point of Connection	2.11	Electrical Reconnection of Point of Connection	Review process to ensure uncertified sites at point of reconnection get recertified within five business days.

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

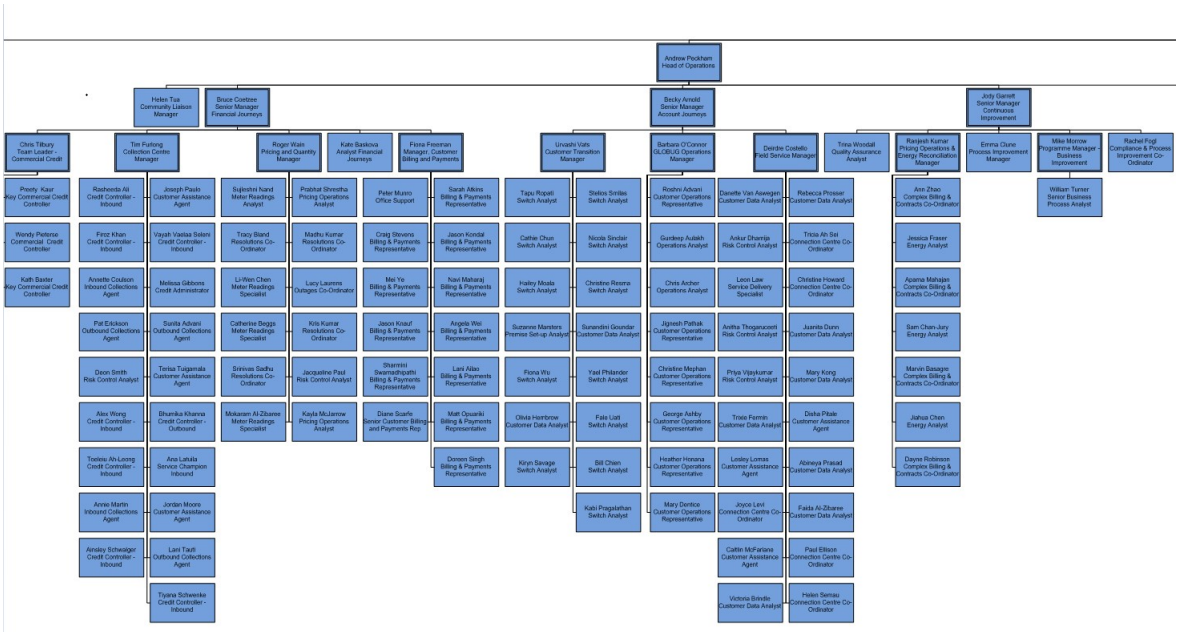
Current code exemptions were reviewed on the Electricity Authority website.

Audit commentary

Mercury has been granted exemption No. 233. This allows them to provide half-hour ("HHR") submission information instead of non half-hour ("NHH") submission information for distributed unmetered load ("DUML"). This exemption expires on 31 October 2023.

1.2. Structure of Organisation

Mercury provided their current organisational structure, which also includes Bosco Connect and Globug:



1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Tara Gannon	Veritek Limited	Lead Auditor
Rebecca Elliot	Veritek Limited	Supporting Auditor

Mercury personnel assisting in this audit were:

Name	Title
Andrew Robertson	Regulatory and Compliance Strategist
Arpana Mahajan	Energy Analyst
Danette van Aswegen	Customer Data Analyst
Dayne Robinson	Customer Data Analyst
Deirdre Costello	Field Services Manager
Jacqueline Paul	Risk Control Analyst
Jessica Fraser	Energy Analyst
Mokram Al-Zibaree	Validations Analyst – Team Leader
Ranjesh Kumar	Pricing Operations and Energy Services Manager
Roger Wain	Manager Price and Quantity
Sam Chan-Jury	Energy Analyst
Tapu Ropati	Switch Analyst
Urvashi Vats	Customer Transition Manager

Other personnel assisting in this audit were:

Name	Title	
Bonnie Gadd	Data Services Operations Manager	Vector Advanced Metering Services
Craig Simpson	Operations Manager	Wells
Fiona Sowry	Solution Support Analyst	EDMI
Julie Feasey	Senior Data Analyst	Vector Advanced Metering Services

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 Mercury.

Audit commentary

Mercury uses some agents for functions covered by the scope of this audit. They are identified in **section 1.9**.

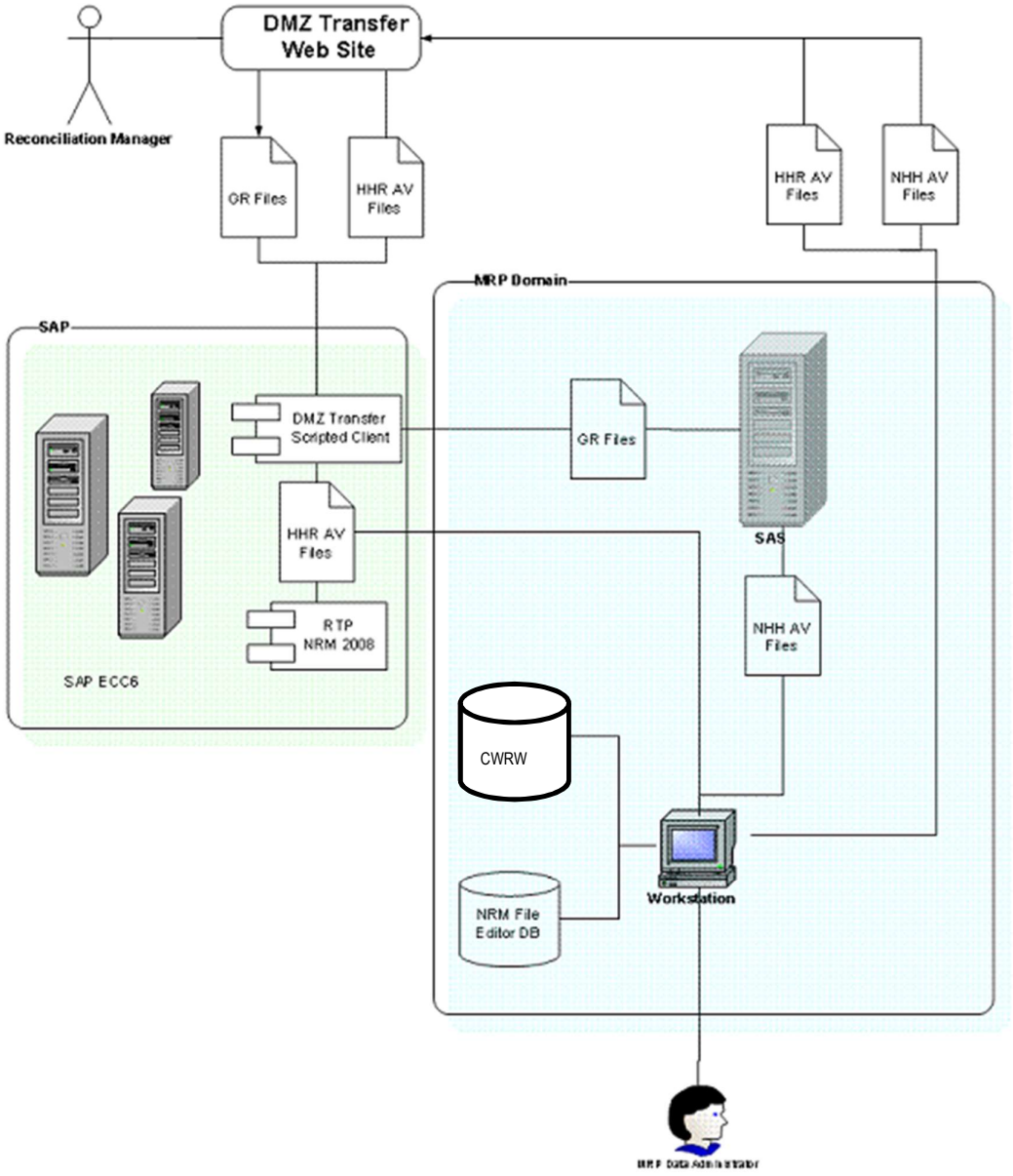
- AMS and EDMI provide HHR data.
- EMS provides HHR data to the pricing manager.
- Councils provide HHR and NHH DUML data.
- Wells provide NHH data.

AMS, Metrix, and Arc Innovations provide AMI data as MEPs, and are subject to a separate audit regime.

1.5. Hardware and Software

A diagram of Mercury's system configuration is shown below.

Information on backup processes was provided, and these processes are in accordance standard industry procedures.



1.6. Breaches or Breach Allegations

There has been one breach allegation relevant to the scope of this audit during the audit period.

An alleged breach of clause 5(b) of schedule 11.3 (reference 1706MERC1) occurred on 2 June 2017, because Mercury sent a switch file without the required metering information. The breach was due to a metering discrepancy which required investigation before the reads could be provided. Mercury elected to complete the switch, rather than withdraw it while the metering issues was resolved.

The Authority's Compliance Committee considered the breach and found there was a minor operational impact, and steps had been taken to prevent recurrence. No further action was taken.

1.7. ICP Data

All active ICPs are summarised by metering category in the table below. 990 of the active ICPs with a metering category of 9 or blank have unmetered load recorded, the remainder are active but have no metering details entered on the registry.

Metering Category	2018	2017	2016
1	345,836	338,896	321,299
2	3,100	3,288	3,297
3	550	622	612
4	160	159	127
5	19	16	16
9	469	107	186
Blank	590	304	556

Status	Number of ICPs (current audit date)	Number of ICPs (2017)	Number of ICPs (2016)
Active (2,0)	350,724	343,392	326,093
Inactive – new connection in progress (1,12)	3	2	2
Inactive – electrically disconnected vacant property (1,4)	3,998	4,201	3,575
Inactive - reconciled elsewhere (1,5)	1	5	5
Inactive – electrically disconnected ready for decommissioning (1,6)	313	511	714
Inactive – electrically disconnected remotely by AMI meter (1,7)	24	13	5
Inactive – electrically disconnected at pole fuse (1,8)	14	10	1
Inactive – electrically disconnected due to meter disconnected (1,9)	1,373	226	25
Inactive – electrically disconnected at meter box fuse (1,10)	1	-	-

Inactive – electrically disconnected at meter box switch (1,11)	4	-	-
Decommissioned (3)	22,751	21,852	20,269

1.8. Authorisation Received

Mercury provided all information requested, a letter of authorisation was not required.

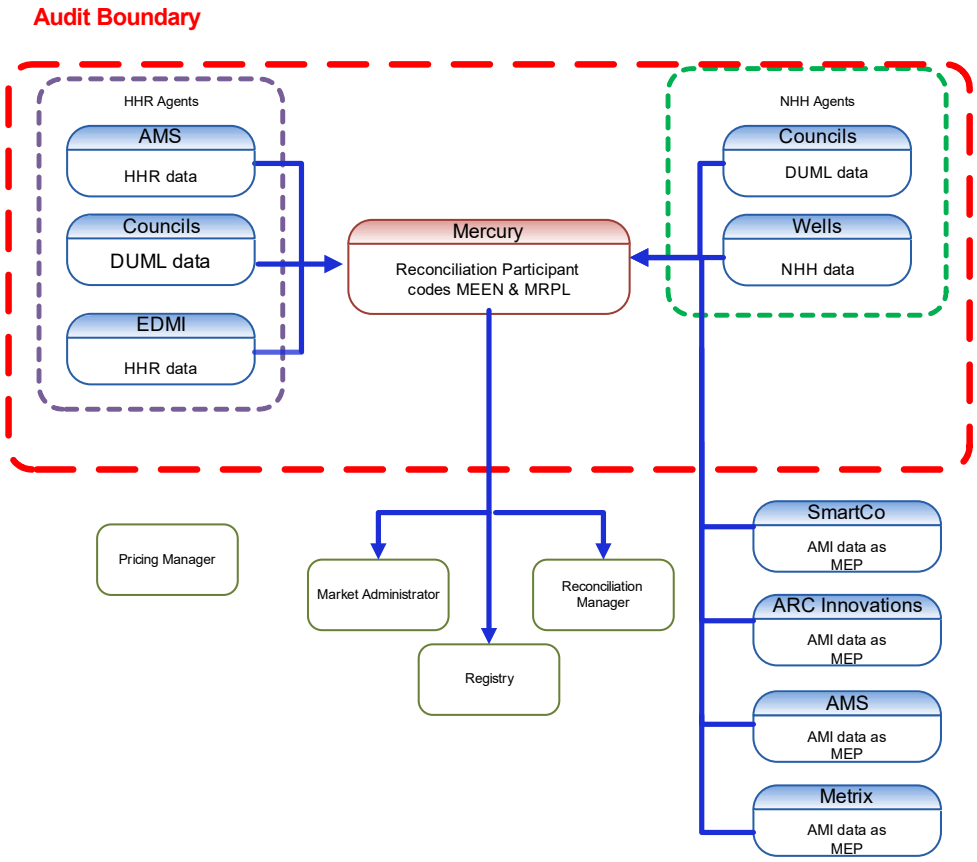
1.9. Scope of Audit

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of Mercury, 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

The audit was carried out at Mercury's premises in Auckland on 10 to 12 April 2018.

The scope of the audit is shown in the diagram below, with the Mercury audit boundary shown for clarity. This report is for the MEEN and MRPL participant codes.



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

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks
(a) - Maintaining registry information and performing customer and embedded generator switching	
(b) – Gathering and storing raw meter data	Wells – NHH AMS – HHR EDMI – HHR
(c)(iii) - Creation and management of HHR and NHH volume information	AMS – HHR EDMI – HHR Various Councils – DUML data
(d) – Calculation of ICP days	
(da) - delivery of electricity supplied information under clause 15.7	
(db) - delivery of information from retailer and direct purchaser half hourly metered ICPs under clause 15.8	
(e) – Provision of submission information for reconciliation	
(f) - Provision of metering information to the Grid Owner	

ARC Innovations, AMS, Smartco and Metrix conduct AMI data collection as MEPs and not as agents to reconciliation participants.

Mercury receives distributed unmetered load (DUML) data from eight Councils, who are considered agents under clause 15.34. Veritek has audited these Councils and the audit reports are separately submitted.

The audit reports for the remaining agents listed above will be submitted with this audit. This report only contains details of those areas where issues were identified or where additional analysis was conducted specifically for Mercury. The agents' reports contain all the remaining detail. Where the report was more than seven months old on the audit due date, I confirmed with the agent that that there had been no changes to systems or processes which could affect Mercury's compliance.

1.10. Summary of previous audit

Mercury provided a copy of their previous audit report conducted in June 2017 by Rebecca Elliot (lead auditor) of Veritek Limited. 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.

Table of non-compliance

Subject	Section	Clause	Non compliance	Status
Relevant information	2.1	11.2 of part 11	Some registry discrepancies.	Still existing
Electrical Connection of an ICP	2.9	10.32	1 backdated electrically connected ICP.	Cleared
Metering certification	2.10	10.33(2) of part	4 ICPs not certified within 5 business days of energisation.	Still existing
Changes to registry	3.3	10 of schedule 11.1	Registry not updated within 5 business days of the event.	Still existing
Provision of registry information	3.5	Clause 9 of schedule 11.1	Registry information not provided within 5 business days of commencement of supply.	Still existing
ANZSIC codes	3.6	9(1)(k) of schedule 11.1	1,664 active ICPs with no or incorrect ANZSIC codes assigned.	Still existing
Unmetered load	3.7	9(1)(f) of schedule 11.1	Unmetered loads populated incorrectly for five ICPs.	Still existing
Active status	3.8	17 of schedule 11.1	Six newly connected ICPs with incorrect active dates. Incorrect active date recorded for some reconnected ICPs.	Still existing
Inactive status	3.9	19 of schedule 11.1	Incorrect status recorded for one HHR ICP.	Cleared
Change of MEP	3.11	10.22(1)(a)	The sending of erroneous MEP nominations when an ANZSIC code is being updated. No MEP rejection process in place.	Still existing but triggered by a different action in SAP

Subject	Section	Clause	Non compliance	Status
Switching	4.2	3 & 4 of schedule 11.3	Incorrect sending of the AA and PD AN response codes for transfer switches.	Cleared for PD Still existing for AA
	4.3	5 of schedule 11.3	Incorrect last read date and average daily consumption figures being sent in some instances. Some late CS files.	Still existing
	4.4	6 of schedule 11.3	One RR sent without being processed via the registry. 24 late RR files sent.	Cleared Still existing
	4.5	6(2) & (3) of schedule 11.3	One RR incorrectly rejected by Mercury.	Cleared
	4.8	10 of schedule 11.3	PD code not used for Move switch ICPs. One late AN file. Some late CS files.	Still existing
	4.9	10 (2) of schedule 11.3	46 ICPs where the event date was set earlier than the gaining traders. 1,183 ICPs where the event date was set greater than 10 days from the gaining traders request date.	Still existing
	4.10	11 of schedule 11.3	Incorrect last read date and average daily consumption figures being sent in some instances. Estimated reads sent for the incorrect event date.	Still existing
	4.11	12 of schedule 11.3	33 late RR files sent. 1 late AC file sent.	Still existing
	4.14	16 of schedule 11.3	20 late CS files sent.	Still existing
	4.15	17 of schedule 11.3	19 switch withdrawals sent later than 2 months of the event date. 2 incorrect switch withdrawal codes sent.	Still existing
Distributed unmetered load	5.4	11(1) of schedule 15.3, 10.14 & 15.13	Some incorrect submission information for DUML ICPs.	Still existing
Electricity conveyed	6.1	10.13 and 15.2	Energy is not metered and quantified according to the code where meters are bridged. NHH ICPs with distributed generation do not have the PV profile recorded on the registry.	Still existing Still existing

Subject	Section	Clause	Non compliance	Status
Responsibility for metering at GIP	6.2	10.26(7) of Part 10	Meter certification expired in April 2017 for ATI0111 and ATI0112.	Cleared
		10.26(11) of Part 10	One certification expiry date change was processed late.	Still existing
Derivation of meter readings	6.6	Clause 5 of schedule 15.2	Photo readings were recorded as actual readings.	Cleared
Interrogate meters once	6.8	7(1) & (2) of schedule 15.2	No reporting in place to quantify ICPs not interrogated at least once during the period of supply.	Cleared, reporting is now available.
90% read target	6.10	9 of schedule 15.2	For four ICPs without an actual read for four months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.	Cleared
Correction of NHH meter readings	8.1	19(1) Schedule 15.2	One bridged meter did not have consumption estimated during the bridged period. Five ICPs with consumption while disconnected, have not had their consumption reported while disconnected Where a meter reading is modified by Mercury, it should be recorded as an estimated reading but is recorded as an actual.	Still existing. Some corrections were not processed accurately.
NHH data validation	9.5	15.2	Where a subsequent read is lower than the switch in reading, the negative consumption is zeroed out.	Still existing
Event logs	9.6	17 of schedule 15.2	AMI event information not adequately obtained and monitored.	Still existing
HHR aggregates file	11.4	15.8 of part 15	There are differences between HHR volume and aggregate information that do not appear to be caused by rounding. HHR aggregates file does not contain electricity supplied information.	Cleared Still existing
Permanence of meter readings	12.8	4 of schedule 15.2 and clause 15.2 of part 15	Not all meter readings were made permanent estimates by the 14 month revision. Forward estimate remained for the September, October and November 2015 14 month revisions.	Still existing
Historic Estimate Process	12.11	4 & 5 of Schedule 15.3	Historic estimate is not calculated correctly for the switch in month, where an ICP has switched back to Mercury after being supplied by another retailer.	Cleared

Subject	Section	Clause	Non compliance	Status
Forward estimate accuracy	12.12	6 of Schedule 15.3	FE accuracy threshold not met for some balancing areas.	Still existing
HE targets	13.4	10 of Schedule 15.3	Historic estimate targets were not met for all revisions.	Still existing refer to **section 13.3**

Table of recommendations

Subject	Section	Clause	Recommendation	Remedial Action
Active status	3.8	17 of schedule 11.1	Check any variances between Mercury's active date and the Distributor's initial energisation date.	Pending
Switching	4.2	3 & 4 of schedule 11.3	Review the system logic for the assignment of AN codes is as accurate as possible.	PD code changed. AD pending the outcome of AN codes in the switching review
	4.11	12 of schedule 11.3	Send AMI reads for active vacant sites and this will reduce the volume of RR requests being sent by gaining traders.	Cleared. AMI reads are being used for vacant sites
Electricity conveyed	6.1	10.24(b) of part 10	Select ICPs by generation capacity and fuel type not by installation type indicator "B". Continue to liaise with Orion regarding 4 ICPs with generation recorded but with no "I" channel. Check whether ICP 0219952000LC610 has generation installed and whether it needs a meter change to import/export.	Cleared. Cleared. Import/export metering is now installed.
Responsibility for metering at GIP	6.2	15.2	Confirm the reconciliation type for ATI2201MercuryG and update the NSP table if necessary.	Cleared. This NSP is correctly recorded.
Interrogate meters once	6.8	9(1) & (2) of schedule 15.2 and clause 15.2	If an actual read is received for a date which is not the customer's scheduled read date, and the customer has already been billed on an estimated reading, the actual read will not be marked as billable and will not be used for billing or reconciliation. If the read is marked as billable, another invoice will be generated. I recommend that Mercury considers reversing the previous invoice and using these reads for billing where the ICP risks breaching the read attainment requirements.	Cleared. Mercury will reverse and rebill where there is a material difference to billing. To improve customer experience, bills are not reversed where there will be a small difference.

Subject	Section	Clause	Recommendation	Remedial Action
			Where reads are not received from AMI meters, Mercury should advise the MEP, so they can investigate and update the AMI flag on the registry if necessary.	Cleared. A job is normally raised with the MEP when a meter is moved to a manual route.
			Develop reporting to measure ICPs not reads during period of supply.	Cleared. Reporting is now available.
HHR aggregates and volumes file	11.4	15.8	Check HHR volume and aggregate submissions are consistent and investigate any significant inconsistencies prior to submission.	Cleared

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 list file was examined to confirm that all information was correct and not misleading, and to identify any registry discrepancies. The registry validation process was examined in detail in relation to the achievement of this requirement.

Audit commentary

Registry notifications and exceptions are managed on a daily basis. In addition to this, registry discrepancy reporting is run using a suite of reports on a weekly basis. These check for mismatches between SAP and the registry. Any discrepancies are reviewed and actioned accordingly.

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

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
Blank ANZSIC codes	2	2	4	See **section 3.6**
ANZSIC "T999" not stated	0	2	0	See **section 3.6**
ANZSIC "T994" don't know	388	1,662	3,454	See **section 3.6**
Status 1,7 -De-energised remotely	0	0	5	Compliance confirmed
Status 1,8 -De-energised at pole fuse	0	0	1	Compliance confirmed
Status 1,9 - De-energised due to meter disconnected	0	0	25	Compliance confirmed
UML load = zero	3	3	3	Compliance confirmed – these are all are SB ICPs. This is discussed further in **section 3.7**.

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
Incorrect UML load	6	2	1	See **section 3.7**
No MEP recorded or nominated and UML= "N"	2	2	1	See **section 3.7**
UML load removed and an MEP is nominated but is still UML in SAP	0	2	-	Compliant
Shared unmetered load incorrect	0	0	7	Compliant
ICPs with different UNM load to that recorded by the Distributor	40	2	5	These are being investigated with the network and customer to confirm which unmetered load is correct. See **section 3.7**.
ICPs with Distributor unmetered load populated but retail unmetered load is blank and UML flag =N	13	45	63	These are being investigated with the network and customer to confirm if unmetered load is present or not. See **section 3.7**.
Incorrect profile	1	1	0	One profile change was in error; it was corrected from HHM to RPS by the new retailer upon switching, but the switch was later withdrawn and the ICP returned to Mercury with RPS profile.

The main area of additional discrepancies found in this audit relate to unmetered load discrepancies and the management of MEP changes.

The registry discrepancy reporting enhancements detailed in the last audit have been actioned except the new connection date alignment check, which is in the programme of work and will be deployed once a further system enhancement has been completed. Enhancements to unmetered load discrepancy reporting are underway, as detailed in **section 3.7**.

This audit identified several automated processes that are not producing the expected outcomes, including:

- some status changes as described in **section 3.3**
- bogus MEP nominations being sent when AW files are generated as described in **section 3.4**
- switch reads are transposed in CS files for some multiple register meters as described in **sections 4.3** and **4.10**.

I recommend that the automated processes be tested to confirm that they are functioning as expected.

Description	Recommendation	Audited party comment	Remedial action
Relevant information	Test automated processes to confirm that they are producing the expected results.	MEEN has raised the relevant IT ticket and is investigating automated processes identified by the auditor as not producing expected results.	Investigating

As detailed in **section 4.15**, ICP 0267709196LC000 (category 2 TOU half hour site) was withdrawn for reason code "UA" (unauthorised switch). The switch withdrawal was sent as the sales person had been unable to get in touch with the customer and the withdrawal was sent to gain more time to get in touch with the customer. This is misleading information and is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 10.6,11.2 & 15.2 From: 01-Jun-17 To: 20-Feb-18	Some registry discrepancies, and one example of misleading information. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as they will mitigate risk most of the time, but there is room for errors to occur. The audit risk rating is low as the number of discrepancies is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Re: issue noted as Mercury had the signed contract with the customer and the staff member believed they had used the correct code. Training has been updated. The second issue relating to automated processes is under investigation by our IT team as part of the recommendations	24 April 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
The user and broader team has been coached on the correct codes to use in this situation. MEEN anticipates UT fixes will occur as a result of the IT tickets.	April 2019	

2.2. Provision of information (Clause 15.35)

Code reference

Clause 15.35

Code related audit information

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

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

2.3. Data transmission (Clause 20 Schedule 15.2)

Code reference

Clause 20 Schedule 15.2

Code related audit information

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

Audit observation

NHH read data is transferred via SFTP by Metrix (for Metrix and Counties Power meters), AMS (for AMS, Smartco and Arc meters) and Wells.

HHR volume data is transferred via SFTP by AMS and EDMI.

Generation data is received via SFTP, and automatically imported into SAP.

To confirm the process:

- I traced a sample of reads for 25 NHH ICPs, and ten HHR ICPs from the source files to SAP, and
- generation station information was checked by comparing the data imported into SAP against check meter information provided.

Audit commentary

The data transfer method varies depending on the MEP or agent, and type of data being transferred.

<u>NHH</u>

For Metrix, a read request is provided two days ahead of the scheduled read date. Metrix then provides reads for the requested reads via SFTP for Metrix and Counties Power meters.

AMS provide a daily file containing AMI reads for all ICPs for AMS, Smartco and Arc meters. Reads for the scheduled read date are extracted and imported into SAP.

Wells provide a daily file for all reads obtained the previous day via FTP. Wells also provide some special (out of cycle) readings via email. These reads are typically used to validate and verify other meter readings and are entered with a read type of unbillable. I did not see any examples where these emailed readings had been treated as actual.

I traced a sample of five readings each for Metrix (including Counties Power), AMS, Smartco, Arc and Wells from the source files to SAP. All readings matched.

HHR

HHR read data is transferred via SFTP for EDMI and AMS. I traced a sample of volume data for five ICPs each for EDMI and AMS. All volumes matched.

Generation

Generation station data is received via SFTP, and automatically imported into SAP. Generation station information was checked by comparing the data imported into SAP against check meter information provided. No issues were identified.

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. Large samples were not necessary because audit trail fields are expected to be the same for every transaction of the same type.

Audit commentary

A complete audit trail was viewed for all data gathering, validation and processing functions. The logs of these activities for Mercury and all agents include the activity identifier, date and time and an operator identifier.

Audit outcome

Compliant

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

Code reference

Clause 10.4

Code related audit information

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

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

Audit observation

I reviewed Mercury's current terms and conditions.

Audit commentary

Mercury's current terms and conditions with their customers includes 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 Mercury's current terms and conditions and discussed compliance with these clauses.

Audit commentary

Mercury's contract with their customers includes consent to access for authorised parties for the duration of the contract. Mercury confirmed that they have been able to arrange access for other parties when requested.

Audit outcome

Compliant

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

Code reference

Clause 10.35(1)&(2)

Code related audit information

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

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

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

Audit observation

The physical meter location point is not specifically mentioned in the Terms and Conditions, but the existing practices in the electrical industry achieve compliance.

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

Audit commentary

Mercury confirmed they do not deal with any installations with loss compensation.

Audit outcome

Compliant

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

Code reference

Clause 11.15B

Code related audit information

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

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

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

Audit observation

I reviewed Mercury's current terms and conditions.

Audit commentary

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

Audit outcome

Compliant

2.9. Connection of an ICP (Clause 10.32)

Code reference

Clause 10.32

Code related audit information

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

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

Audit observation

The new connection process was examined in detail to evaluate the strength of controls. The list file and event detail report for the period from 1/9/17 to 20/2/18 were analysed to confirm process compliance, and that controls were functioning as expected.

Audit commentary

NHH New Connections

New connections on the Vector and Powerco networks are advised by the network. For the other networks, the application is received from the customer's agent such as the electrician. They then contact

the network and request the creation of an ICP. Mercury accept responsibility for the ICP and work with the MEP and electrician to progress the connection. They do not use the "new connection in progress" status. The ICP remains at the "ready" status on the registry until confirmation of the electrical connection is received. They then move the ICP to "active" status and nominate the MEP at this point. No examples were found of NHH ICPs with backdated creation dates.

Half Hour New Connections

Half hour new connections are initiated by the sales team. An ICP is requested from the relevant network. All new connections in progress are managed via the WIP spreadsheet. A work requisition is sent to the MEP for the metering. The ICP is updated to "active" once confirmation of the electrical connection is received from the field. Mercury were using the "new connection in progress" status for HHR new connections to avoid late MEP nominations. It is only used now if a delay to the electrical connection is anticipated. No examples were found of HHR ICPs with backdated creation dates.

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 list file and event detail report for the audit period from 1/9/17 to 20/2/18 were analysed to confirm process compliance and that controls were functioning as expected.

Audit commentary

NHH New Connections

None of the NHH new connections were temporarily electrically connected, and this is unlikely to occur for Mercury.

Half Hour New Connections

As discussed in **section 2.9**, Mercury's HHR new connections uses the "inactive - new connection in progress" status only if the electrical connection is expected to be delayed. The process of MEP nomination is done via service requests issued directly to the MEP. The MEP nomination is sent at the time the ICP is made "active" on the registry.

If an ICP is temporarily electrically connected, Mercury will not be recorded in the registry as responsible for the ICP as required by this clause. One HHR ICP was identified to have been temporarily electrically connected and not claimed by Mercury within five business days of this event:

- 1002038106LC168 was temporarily electrically connected for certification on 13/10/17 but Mercury didn't claim it in the registry until the 31/10/17 for an active date of 25/10/17 (confirmed to be the correct date by viewing the consumption data flow).

I recommend that the "inactive - new connection" status be used for all NHH and HHR new connections.

Description	Recommendation	Audited party comment	Remedial action
Temporary Electrical Connection of an ICP	Use the "inactive -new connection status" to ensure that Mercury is recorded as the responsible participant in the registry.	MEEN is looking at using this different status. Depending upon the level of process change required will drive implementation dates.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.10 With: 10.33(1) From: 13-Oct-17 To: 31-Oct-17	One ICP was temporarily electrically connected where Mercury was not recorded as the responsible participant in the registry. Potential impact: Low Actual impact: None Audit history: None Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak as Mercury claims all new connections post electrical connection and therefore they are not recorded in the registry as the responsible participant at the time of temporary electrical connection. The audit risk rating is low as this has no direct impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
This was identified as a one off operator error due to unclear paper work provided by a contractor. The staff member has been coached.	April 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Ongoing coaching as required for the staff member. Mercury is unsure if the auditors recommended actions would have stopped this from occurring however the recommendation is looking to be implemented.	Ongoing	

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*
- *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 and the list file as at February 2018 and event detail report for the period 1/9/17 to 20/2/18 were analysed.

89 ICPs (3% of reconnections) were reconnected with expired interim certified meters. A sample of ten of the ICPs with expired metering on the registry was checked using the homogenous sampling technique.

Audit commentary

New Connections

As discussed in **section 2.9**, Mercury's new connections process only use the "inactive - new connection in progress" status for half hour new connections which are anticipated to be delayed. The process of MEP nomination is done via service requests issued directly to the MEP, and the MEP nomination is sent at the same time the ICP becomes "active" on the registry. If a new connection is backdated greater than five business days, Mercury will not be recorded in the registry as responsible for the ICP as required by this clause. Therefore the 73 backdated new connections identified in **section 3.5** are non-compliant. I recommend that the "inactive - new connection in progress" status is used for all new connections in **section 2.10**.

Analysis of the list file and event detail report found two NHH ICPs that were not certified within five business days of the electrical connection date. Certification is an MEP responsibility, but their delay has caused Mercury to be non-compliant.

ICP	MEP	Electrical connection date	Certification date	Days elapsed
NHH New Connections				
0000569231NR2C3	MTRX	10/11/2017	12/01/18	63
0000569237NR34C	MTRX	2/11/17	13/02/18	103

In the last audit I found four ICPs that had had metered builder's temporary supplies installed but these meters were never loaded to the registry. These were identified when checking the new connections that appeared to have late certification. In this audit I found only one example. The metered BTS was recorded in SAP, but was never recorded in the registry by the MEP. I also found a half hour connection (ICP 0003133799AAC0A) that appeared to have late certification, but upon investigation I found that the

initial metering was never recorded on the registry by the MEP, but was recorded in SAP. This is also discussed in **section 3.8**.

ICP	MEP	Electrical connection date	Certification date	First Metering Certification loaded
0000569212NR356(NHH)	NPOW	17/11/17	17/11/17	13/2/18
0003133799AAC0A(HHR)	AMCI	15/12/17	15/12/17	24/01/18

Overall there was a very high date match rate between the active date recorded by Mercury, the initial electrical connection date recorded by the Distributor (97.7%) and the meter certification date (98.9%). This indicates this is a not a widespread issue but should continue to be monitored as part of the MEP audit process as it is the MEP's responsibilities to manage the metering records.

Reconnected ICPs

Mercury were unaware of their responsibility to ensure meters are recertified when electrically reconnecting sites, therefore this is not part of the reconnection process checks and I recommend that the process be reviewed to ensure this requirement is addressed.

Description	Recommendation	Audited party comment	Remedial action
Electrical Reconnection of Point of Connection	Review process to ensure uncertified sites at point of reconnection get recertified within five business days.	MEEN is now aware of this obligation and will look to introduce a process to reduce these breaches, however these will never be fully resolved due to market operating procedures. Preventative actions taken to ensure no further issues will occur Auditor also identified to MEEN this is an industry wide issue. It could/should result in retailers refusing to accept customer switches in order to remain compliant. This appears to be detrimental to customers and the market and Mercury suggests EA review this obligation. In addition 5 business days is unachievable with current industry and participant response rates (average is 21 days based on MEEN sampling)	Investigating

Analysis of the event detail report identified 89 ICPs that have been reconnected with uncertified metering. The sample of ICPs uncertified at the time of reconnection were examined and found to still have uncertified metering present. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.11 With: 10.33A From: 01-Jun-17 To: 12-Apr-18	73 ICPs electrically connected where Mercury was not recorded as the responsible participant in the registry. 2 ICPs not certified within five business days of electrical connection. 89 ICPs not certified within five business days of electrical reconnection. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak as Mercury does not use the "inactive - new connection in progress" status therefore late new connections also cause late MEP nomination. There are no controls in place to ensure reconnected ICPs with uncertified metering are certified within five business days. The audit risk rating is low as this has no direct impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN is looking to implement the Auditors recommendation and investigate changing processes or refusing customers transfers. As noted by the auditor, it is MEP non-compliance that is triggering Retailer non-compliance.	October 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
EA should consider this as an industry wide issue where compliance by a retailer is potentially unachievable.	2020	

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, and controls within SAP were checked.

Audit commentary

Mercury demonstrated the existence of either a UoSA or other trading arrangement for all networks it trades on.

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, and a check of controls within SAP.

Audit commentary

Mercury has an arrangement in place with all MEPs that manage metering in relation to their customer base. The new connection process also contains a step that requires the nomination of an MEP.

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 managed and understood by Mercury. The process is detailed in **section 2.9** above.

Audit outcome

Compliant

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

Code reference

Clause 11.7(2)

Code related audit information

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

Audit observation

The new connection process was examined in detail. The list file was analysed in conjunction with the event detail report for the period 1/9/17 to 20/2/18 to evaluate the updating of the registry in relation to new connections. This clause links directly to **section 3.5** below. The findings for the timeliness of updates are detailed there.

Audit commentary

The new connection process is detailed in **section 2.9** above. The process in place ensures that the trader required information is populated as required by this clause.

Audit outcome

Compliant

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

Code reference

Clause 10 Schedule 11.1

Code related audit information

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

Audit observation

The process to manage status changes is discussed in detail in **sections 3.8 and 3.9** below. In this section I have examined the event detail report for the period from 1/9/17 to 20/2/18. I used the extreme case methodology examining a sample of ten ICPs (or the whole population if there were less than ten) that were updated greater than 30 days from the event date for each of the event type updates except a change of MEP on an existing ICP. The sample for these was selected using the diverse characteristics methodology.

Audit commentary

The table below shows the timeliness of registry updates.

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to active - Reconnections	2016	847	657	190	24	78%
	2017	1,182	977	205	21.2	83%
	2018	2,899	2,141	758	26.3	74%
Change to electrically disconnected vacant (excluding new connection in progress and ready	2016	148	59	89	230	40%
	2017	1,865	1,653	212	12.2	89%
	2018	2,750	2,555	195	7.09	93%

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
for decommissioning statuses)						
Change to electrically disconnected - ready for decommissioning	2016	231	59	172	66	26%
	2017	906	302	604	69.2	33%
	2018	501	276	225	74.1	55%
Change to new connection in progress	2016	6	1	5	19	83%
	2017	17	8	9	24.2	76%
	2018	1	1	0	2	100%
Change of MEP	2017	978	126	852	24.6	13%
	2018	2,837	2,788	49	*-26	98%

**The average notification days includes ICPs where the nomination has been sent well in advance of the meter being recertified hence it is a negative number.*

Reconnections

The level of compliance for reconnections has declined by 9% during the audit period. The process for reconnections is largely automated. The closing of a service request triggers an update to SAP and then the registry for all such status updates. Any rejections from the registry are managed by exception in the field services team. Analysis of the ICPs backdated greater than 30 days found:

- Six ICPs were incorrectly updated to the last active date when the meter was removed in SAP. These ICPs are disconnected and therefore the status recorded in the SAP and the registry is incorrect. The incorrect status is recorded as non-compliance in **section 3.8**. It appears that a part of the meter removal process in SAP is returning ICPs to active for the last active date recorded in SAP, effectively removing the inactive status time slice. It is unclear under what conditions this is occurring, but this is a system issue. Mercury have logged a job with IT to investigate and correct this.
- Two were backdated due to corrections after the sites were investigated.
- ICP 0000008626UN93A was incorrectly backdated to active due to an earlier task in SAP not being closed out properly. The action of completing this task caused the incorrect status update. As with the meter removal issue identified above this ICP is disconnected. This is a system issue and a job has been logged with IT to investigate and correct this.
- ICP 0000008626UN93A has been incorrectly backdated to active by SAP but unlike the previous seven examples there is no activity on the account to determine why this has occurred. A job has been logged with IT to investigate and correct this.

Due to the system issues identified I undertook a check of a further ten examples using the homogenous sampling methodology of ICPs backdated between 5-30 days from the effective date. This found similar issues to those found above:

- Three were backdated switches and the reconnection task was updated as soon as the switch completed.
- Two examples of the automated reconnection task not being completed. A helpdesk job was raised in both instances to get these tasks to complete. These events are monitored and managed as part of BAU.
- Two were due to human error where the tasks within SAP were not completed correctly.
- One example (ICP 1001152683LC5D0) of an earlier task in SAP not being closed out properly causing an incorrect update to active.
- One example (ICP 0140428224LCFE4) where the reconnection task did not create the active time slice and instead changed the site back to inactive and this was corrected upon discovery.
- One (ICP 0000223246UN43E) is still being investigated by Mercury therefore the root cause cannot be determined.

I note that Mercury have upgraded the SAP platform in November 2017. There were no changes to the reconnection process as part of this platform upgrade, and the incorrectly backdated reconnected ICPs had been occurring prior to this, so the platform change does not appear to have been a cause for these. I note that the issues identified in this audit are similar to those identified in the 2016 audit which suggests that the automated updates are not always producing the expected outcome and these errors are not being identified. I recommend in **section 2.1** that the automated processes be further tested to confirm that they are functioning as expected.

Disconnections

Inactive - New Connection in Progress

As detailed in **sections 2.10** and **2.11**, Mercury do not use this status as part of their new connection process with the exception of some HHR new connections.

Electrically disconnected - "vacant" or similar

The management of the field contractors remains unchanged from last year. For standard disconnection activities, field contractors are managed closely. Not all have the same level of technology available to them and delayed paperwork can still be a problem with those contractors using traditional paperwork trails. The largest contractor Vircom EMS uses hand held PDAs in the field. Once the job is updated in the PDA the notification is sent back to Mercury. Daily reporting is in place to identify any of their jobs outstanding. A specific team actively work through these service requests. The status updates for credit disconnections are updated on a weekly basis, back to the first full day of no power.

The table above shows a further improvement from 89% in 2016 to 93% for ICPs that are updated to inactive "vacant". The process is automated so that the status in SAP updates when the service request is completed. In the last audit I recorded that the process was not always completing these as expected for a small number of jobs. The "Disconnection for vacant project" detailed in the last audit has been completed There were no examples found of this in this audit. There is a known issue that if the processing of service requests occurs in the wrong order e.g. the reconnection task is completed before the disconnection task is completed then the ICP will be recorded at the incorrect status. The sample checked found all were corrections identified as part of business as usual processing.

- Eight were already at an inactive status and these were updated to accurately reflect how the ICPs are disconnected. Whilst technically backdated it was not a change of status as such.
- Two were corrections to the status due to human processing errors (where the tasks in SAP hadn't been closed correctly).

The late updating of these to "inactive" is recorded as non-compliance below.

Inactive - Ready for Decommissioning

The request for ICPs to be decommissioned can come from the MEP, the customer or the Network. An attempt to gain a read happens in all instances. This process has been changed since February 2018. Previously if no decommissioning paper work or request from the network to change the status to "inactive - ready for decommissioning was received, then the ICP was recorded as "disconnected - meter removed". Decommissioning paperwork is now sought from the networks and once received the ICP is updated to "ready for decommissioning". The sample of backdated updates checked found all related to the late receipt of paperwork from the network.

Change of MEP

HHR ICPs

For HHR ICPs any change of MEP requires a meter lease form to be used to formally request the metering. This process of MEP nomination is managed directly in the registry and any MEP rejections would be investigated. As the MEP is known no MEP rejections have been received.

NHH ICPs

The MEP nomination process has been reviewed and improved during the audit period. 87% of all MEP nominations are now made within five business days of the metering being installed. MEP nominations for bulk roll outs identify the affected ICPs and the correct MEP is nominated in advance via a file. Meter relocations and import/export meter changes are managed manually. Mercury are undertaking a further review to better capture bulk meter rollout exceptions and further improve MEP nominations.

The event detail analysis identified 2,837 MEP nomination events. The nomination date was compared to the metering event effective date to identify any ICPs that were not nominated within five business days and found 49 ICPs (1.7%) were not sent within five days of the meter certification. The sample checked found a variety reasons:

- Three were due to human error with the MEP nomination being reversed in two instances and the paperwork for one ICP was returned to the incorrect department delaying the MEP nomination.
- ICP 0000568259NRE87 was a correction to the nomination date.
- ICP 0000223608MP9AB had a new meter installed but this was not advised to Mercury. The meter reader identified the new meter and Mercury followed up with the MEP.
- Two ICPs (0007166572RNAF4 & 0007139447RN353) where the nominated MEP nominated couldn't complete the work and the new MEP wasn't nominated until after the paperwork was received.
- ICP 0000005964TE47B - the MEP rejected the nomination in error.
- ICP 0000568676NR00D was late due to the meter change occurring as the ICP switched into Mercury. Mercury nominated the MEP as soon as the switch completed.
- ICP 0000568659NR286 was due to confusion as to who the meter owner was for this site as Northpower was installing both their own and Metrix meters. Northpower advised Mercury to nominate the incorrect MEP.

The late updating to the registry is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: Clause 10 of schedule 11.1 From: entire audit period	Registry not updated within 5 business days of the event for MEP changes, reconnections and disconnections. Potential impact: Medium Actual impact: Low Audit history: Multiple Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak as three automated update processes were found to be incorrectly backdating and updating ICPs with incorrect information. The audit risk rating is medium as the issues identified are affecting an unknown number of ICPs with incorrect status updates.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN is investigating additional reporting to identify these sites. Once reporting in place, a change to business processes will occur to manage these exceptions.	October 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	October 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 and the list file, as at 20/02/18, was examined to identify any active ICPs that do not have an MEP recorded. This analysis found 63 active ICPs that do not have an MEP recorded in the registry. All were checked to confirm an MEP has been nominated and accepted. The event detail report was analysed and showed 181 MEP rejections. A sample of ten were checked using diverse characteristics to identify root causes.

ICP Decommissioning

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

Audit commentary

Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process is discussed in detail in **section 2.9**. Mercury nominate the MEP at the same time the ICP becomes "active". Therefore, if this is late the MEP nomination will also be late. This is recorded as non-compliance in **sections 2.10** and **2.11**.

As discussed in **section 3.3,** the MEP nomination process has been improved during the audit period and is under review to further improve the process. The list file analysis found 52 active ICPs with no MEP recorded on the registry, and found an MEP had been nominated and accepted for all but two ICPs. Both were DUML ICPs and these are recorded as non-compliant in **section 3.7**.

The issue reported in the last audit of bogus MEP nominations being sent when ANZSIC codes are updated has been corrected. The sample of MEP rejections checked found that they all related to SAP generating a bogus MEP nomination when an AW switching file is sent. Mercury have logged a job with IT to investigate and correct this. MEP rejection reporting has been put in place since the last audit and this is being reviewed as part of the MEP nomination review to ensure all rejections are captured and actioned appropriately.

ICP Decommissioning

Mercury continues with their obligations under this clause. ICPs that are vacant and active, or inactive are still maintained in SAP.

In all cases, an attempt is made to read the meter at the time of removal and if this is not possible then the last actual meter reading is used. This last actual reading is normally the one taken at the time of de-energisation. Mercury also advise the MEP responsible that a site is to be decommissioned. A sample of ten ICPs were examined to confirm an attempt to read the meter was made at the time of removal.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.4 With: Clause 11.18 From: 01-Jun-17 To: 12-Apr-18	The sending of erroneous MEP nominations when an AW file is sent. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak as the AW automated update process is sending erroneous MEP nominations. The audit risk rating is low as this has no direct impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
IT ticket for investigation has been raised.	October 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Depending upon outcome of investigation, MEEN anticipates a fix will need to be implemented.	October 2019	

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

Code reference

Clause 9 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

The new connection process was examined in detail. The list file was analysed in conjunction with the event detail report for the period from 1/9/17 to 20/2/18 to evaluate the updating of the registry in relation to new connections. I used the extreme case methodology examining a sample of ten latest ICP updates from the event date. All ICP information was checked to confirm it had been provided. This identified 16 ICPs with no MEP and the UML flag is set to "N". These were checked.

Audit commentary

The table below shows an 8% decline in the level of compliance to 79%. Three ICPs (0.009% of all new connections) were not updated for 30 days or more.

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	2016	413	355	58	4.1	86%
	2017	1,523	1,323	200	3.9	87%
	2018	*349	276	73	4.3	79%

**The volume of new connections is less than last time as I only selected those ICPS where MEEN/MRPL was the nominated trader – if subsequent network event strips out the proposed trader these ICPs will be ignored.*

New Connections

Half Hour

The new connection process as described in **section 2.9** is largely manual and tracked through a spreadsheet. The correct active date was recorded in all instances. One of the late new connections checked from the sample was a HHR site. ICP 0003133799AAC0A was updated to active late due human error. The HHR TOU team identified this as part of the reconciliation checks.

Non-Half Hour

The non-half hour new connections team do not use the "new connection in progress" status. The cycle time to complete and update the registry for new connections has declined during the audit period. The process is reliant on paperwork being returned from the field and the ICP is updated to active. SLA management is in place to manage the field contractor performance. There have been no changes to this process during the audit period, but it appears contractor performance has declined.

The sample of late updates to the registry found:

- Eight were updated late due to late paperwork back from the field. If the paperwork has not been received then the contractors are not paid, which generally ensures that paperwork is returned promptly.
- ICPs 0000569312NRA52 and 1002040546LC875 were backdated to correct the active date.

The late updating of the registry to active is recorded as non-compliance below.

The list file identified 16 active ICPs with metering removed (category 9) and the UML flag set to N. I checked all 16 and the table below shows the results.

ICP	UNM Flag	MEP	Metering Category	Comments
0000034607DE089	N	DELT	9	Mercury are unable to nominate Metrix as the MEP until Delta reverse their metering event. Request is with Delta to progress.
0000535560NR178	N	MTRX	9	ICP since decommissioned.
0001264717UNC3A	N	MNON	9	RLDC DUML ICP - see **section 3.7**
0002273985CN646	N	COUP	9	This is under investigation with the MEP as to why they have removed the metering.
0003726090WFF93	N	FCLM	9	ICP since decommissioned.
0005557569RNACC	N	ARCS	9	ICP since updated to disconnected.
0006922317RNE90	N	AMCI	9	Certified meter is recorded in SAP.
0022739851CNE1A	N	COUP	9	ICP since updated to disconnected.
0099552855CNFA7	N	COUP	9	ICP since updated to disconnected.
0176116206LCE0F	N	MTRX	9	ICP since updated to disconnected.
0226429199LC632	N	MTRX	9	ICP since updated to disconnected.
0234541571LC650	N	MTRX	9	ICP since updated to disconnected.
0247497959LCE9A	N	MTRX	9	ICP since updated to disconnected.
0376898445LC2BB	N	MTRX	9	ICP since updated to disconnected.
0447814877LCA25	N	MTRX	9	Awaiting paperwork to confirm decommission.
1000007362BPC29	N	BOPE	9	Awaiting paperwork to confirm decommission.
1000510806PC47F	N	MNON	9	Matamata Piako DUML ICP - see **section 3.7**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.5 With: Clause 9 of schedule 11.1 From: 01-Jun-17 To: 12-Apr-18	Registry information not provided within 5 business days of commencement of supply. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as they will mitigate risk most of the time but there is room for errors to occur. The audit risk rating is low as the average cycle time to complete is still below 5 days, and only 0.009% of new connections took greater than 30 days to be updated.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer 2.1. Change to process anticipated. This is part of the auditor's recommendations.	October 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	October 2019	

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

Code reference

Clause 9 (1(k) of Schedule 11.1

Code related audit information

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

Audit observation

The process to capture and manage ANZISC codes was examined. A Registry List was reviewed to check ANZSIC codes including checking for all ICPs with an undefined ANZSIC code such as "T994 - don't know". I selected a sample of ten ICPs using the typical case methodology to confirm if they were valid "don't know".

I selected a sample of 40 active ICPs across five different ANZSIC codes using the diverse characteristic methodology and 60 residential coded ICPs using the typical case methodology to confirm the validity of the codes applied.

Audit commentary

The volume of "Don't know" ANZSIC codes has further reduced. In the last audit report Mercury stated they would add this to the registry discrepancy reporting and this has been done.

Analysis of active ICPs in the list file found two ICPs with no ANZSIC code. These are the same two ICPs as detailed in last year's audit. The registry will not allow an update to the trader details until an MEP is registered for a HHR site even though these are DUML ICPs. Mercury are working with the Authority to resolve this issue.

There were 388 ICPs with ANZSIC code T994 "Don't know". This is a reduction of a further 76% from the 1,662 ICPs reported in the last audit and an excellent reduction from the 3,454 in 2016. The sample checked of these found that nine have since been updated as part of BAU. The remaining ICP cannot be determined as it is an active vacant property.

I checked a sample of 40 active ICPs across five different ANZSIC codes which had a sizeable population in relation to the code. For example, ANZSIC code "other personal services". This code is applied if the business name is based on an individual's name which is not necessarily correct, for example ICP 0000001238NTE25 looks like a pump shed. Of the 40 ICPs checked 11 ICPs appeared to be incorrectly coded when checked on google maps.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.6 With: 9 (1(k) of Schedule 11.1 From: 01-Jun-17 To: 12-Apr-18	390 ICPs active ICPs with no or "Don't know" ANZSIC codes assigned. 11 of 40 industry coded ICPs checked had an incorrect ANZSIC code. Potential impact: None Actual impact: None Audit history: Multiple Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are weak for the management of ANZSIC codes the accuracy of sample checked found 25% potentially incorrect. This has no direct impact on reconciliation therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Since the audit MEEN has implemented a new process which has reduced the occurrence of this breach.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above no further preventative actions have been identified or recommended.	N/A	

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 list file as at February 2018 was examined to identify any ICPs where:

- Unmetered load is identified by the Distributor, but none is recorded by Mercury.
- Mercury's unmetered load figure doesn't match with the Distributor's figure (where it's possible to calculate this if the Distributor is using the recommended format) and the variance is greater than 1.0kWh per day. 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. A sample of ten ICPs with the greatest variance was examined.

Audit commentary

All unmetered load new connections or capacity changes require an application to Mercury, which then follows the "new connections" process.

Examination of the MEEN list file found 1,081 active ICPs have unmetered load recorded, excluding shared unmetered load. The volume of unmetered ICPs has increased due to the unmetered telco ICPs that have switched into Mercury during the audit period.

Registry discrepancy reporting is in place to identify unmetered load discrepancies. This is run against all ICPs with UML flag "Y" and against any ICPs with UML indicated by the Distributor where the UML flag is "N". Currently the comparison is run only against those records that detail wattage and not kilowatt figures.

Of the loads that were able to be checked (307 out of 1,081 ICPs), I found 40 ICPs had a discrepancy. The 40 ICPs with unmetered load discrepancies all had the load recorded in kW hence they weren't identified. The query is being updated to include these and the ICPs identified will be investigated to determine the correct load.

As recorded in the last audit ICP 1099569132CN617 has 0.72kWh per day recorded by MEEN but the distributor has 0.36 kWh per day. This connection is a radio repeater. The load was corrected during the site audit.

There are 13 active ICPs where the distributor has unmetered load populated, but the retailer has no unmetered load indicated (i.e. UML flag is "N"). This has reduced from 45 ICPs identified in last audit. These are being investigated with the customer and the networks concerned. Nine have since been confirmed by the network that there is no unmetered load present and they will remove their unmetered load details. Mercury are awaiting responses from the networks for three ICPs. ICP 0000371259TU7FE's UML flag was incorrectly changed to "N" due to a metering event. This was a human error and not a system-based issue and has since been corrected.

ICP 0015723581ELA43 has switched into Mercury during the audit period. This ICP has a single phase meter on a Telstra amplifier in the Kapiti Coast region. The issue is that there are 101 such amplifiers

and the ICP has a multiplier of 101. The other amplifiers are unmetered at locations unknown in the Kapiti area, but the load is being incorrectly reconciled against this ICP. This ICP has been identified in both the previous retailers and associated MEP's reports. This is recorded as non-compliance below.

Two ICPs are recorded on the registry with no MEP nominated, no metering and UML set to "N". These were examined and found:

- ICP 1000510806PC47F is the Matamata Piako District Council DUML ICP. This is being reconciled HHR but has the incorrect NHH flag selected and the UML flag set to "N".
- ICP 0001264717UNC3A is one of the Rotorua Lakes District Council DUML ICPs.

As discussed in **section 3.6**, the registry will not allow an update to the trader details until an MEP is registered for a HHR site even though these are DUML ICPs. Mercury will apply for an exemption for these ICPs that will allow them to be reconciled half hourly as they do not have meter.

There are three ICPs with zero populated in the daily UML kWh field. All are residual load SB ICPs and are compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.7 With: Clause 9(1)(f) of Schedule 11.1 From: 01-Jun-17 To: 12-Apr-18	Incorrect unmetered load is recorded for five ICPs Potential impact: Low Actual impact: Unknown Audit history: Multiple Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	I have rated the controls as moderate as the registry discrepancy process picks most errors up and the updating of the unmetered load query will further improve this. The audit risk rating is medium due to the unknown impact of the Kapiti coast ICP that has may have incorrect volumes being reconciled against the incorrect GXP and balancing area. The volumes associated with the unmetered load variances are small.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN has a project in place to specifically address UML sites. Some recently inherited sites were not picked up through audits of other retailers as being non-compliant. Dummy ICP's were used by previous retailers. MEEN therefore is starting from a low data bases as to what is in the field. This project will need customer support but is in train.	April 2019	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Regular reviews of UML sites to identify issues	April 2019	

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

Code reference

Clause 17 Schedule 11.1

Code related audit information

The ICP status of "active" is be managed by the relevant trader and indicates that:

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

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

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

Audit observation

The new connection process was examined in detail as discussed in **sections 2.9, 2,10, 2.11** and **3.5**. The list file as at February 2018 was examined to identify any ICPs still at the status "Inactive - new connection in progress" with an initial electrical connection date populated. The event detail report and list file report were checked for any variances between the initial electrical connection date and the active date. I checked a sample using the typical case methodology of ten ICPs with a variance between the active date, the initial electrical connection date, and the meter certification, or less if there were fewer than ten ICPs from the analysis as is the case for half hour new connections.

The process for the management of ICP reconnection was examined. The event detail report for the audit period was analysed and the findings in relation to the timeliness of updates to registry is recorded in **section 3.3**.

Audit commentary

The status of an ICP is only changed to "active" once confirmation has been received from a contractor. Submission information is provided for all "active" ICPs. SAP will not allow more than one party per ICP nor will it allow an ICP to be set up without either a meter, or if it is unmetered, the daily kWh.

Analysis of the list file identified found no ICPs at the status of "inactive - new connection in progress" with an initial electrical connection date.

Analysis identified a small number of discrepancies between the initial electrical connection date and the active date. These are detailed below by connection type of either half hour new connection or non-half hour new connections, as the process for connection is different as is described in **sections 2.9** and **3.2.**

Half hour new connections

The Analysis of the list and event detail files identified nine half hour new connections. Three were found to have date variances and these were checked as detailed in the table below:

ICP	Active date	Initial electrical connection date	Meter certification date	Comments
0003133799AAC0A	15/12/2017	15/12/2017	24/01/2018	Mercury's active date is correct. MEP has not loaded original metering to the registry.
1002037386LC745	12/09/2017	30/08/2017	28/09/2017	Mercury's active date is correct. MEP has not loaded original metering to the registry.
1002038106LC168	25/10/2017	Blank	2/11/2017	Mercury's active date is correct. MEP has not loaded original metering to the registry.

Non-half hour new connections

The accuracy of the active dates for the new connections was checked against the meter certification date and the initial electrical connection date across all identifiable new connections. The tables below show the results.

Active Date vs. Initial Electrical Connection Date

	New Connections	Of those populated Active vs. IECD Matched	Different
Distributor Initial Electrical Connection Date	614	600 (97.7%)	14

All ICPs with a variance were examined and found:

- Ten of the ICPs with a different initial electrical connection date were found to have a meter certification date that matched to Mercury's active date suggesting that the Distributor's date is incorrect in these instances.
- Four were taken to active for the incorrect date (human error) and have since been corrected.

Active Date vs. Meter Certification Date (excluding UML connections and where cert date was not recorded in the EDA)

	New Connections	Matched	Different
Meter Certification	388	382 (98.9%)	6

I note that metering certification may not be the same day as electrical connection occurs. The ICPs with a variance was checked and found:

- Three ICPs have the incorrect active date due to human error (these are the same ICPs identified above as having the incorrect active date).
- Mercury's active date for two ICPs was correct and the meter was certified late. This is recorded as non-compliance in **section 2.11**.
- ICP 0000569212NR356 has the correct active date and as recorded in **section 2.11,** the original metering was never loaded to the registry.

Mercury are awaiting a system enhancement before they can deploy the check for date variances for new connections as was recommended in the last audit.

Reconnections

This issue discussed in **section 3.3** where SAP is incorrectly updating disconnected ICPs to the last active date when a meter was removed in SAP is recorded as non-compliance. These ICPs are disconnected and therefore the status recorded in the SAP and the registry is incorrect. It is unclear under what conditions this is occurring, but this is a system issue. Mercury have logged a job with IT to investigate and correct this.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.8 With: Clause 17 Schedule 11.1 From: 01-Sep-17 To: current	Four newly connected ICPs with incorrect active dates. Disconnected ICPs being incorrectly updated to active in the registry. Potential impact: Low Actual impact: Unknown Audit history: Multiple Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak as automated update processes were found to be incorrectly backdating and updating ICPs with incorrect information. The audit risk rating is medium as the issues identified are affecting an unknown number of ICPs with incorrect status updates.

Actions taken to resolve the issue	Completion date	Remedial action status
For the 4 ICP errors Mercury had the correct date however this was a MEP error (see notes). Mercury has corrected the 4 errors. For the secondary issue an IT ticket has been raised to investigate and resolve.	April 2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above. It will depend upon the outcome of the IT ticket.	April 2020	

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

An event detail report for the period of 1/09/17 to 20/2/18 was reviewed, to identify all changes to inactive during the audit period.

The inactive status of "new connections in progress" is only used for HHR new connections if they are expected to be delayed. The list file was examined to identify any ICPs that had been at the "Inactive - new connection in progress" for greater than 24 months.

The process to manage ICPs at the other inactive statuses was examined. A sample of five ICPs at each inactive status using the typical characteristics methodology were checked. The findings in relation to the timeliness of updates to registry is recorded in **Section 3.3**.

Audit commentary

Inactive - New Connection in progress

Examination of the list file found two ICPs at this status. These were examined.

Mercury's NHH connection team do not use status (1,12) "New Connection in progress" so there is no doubt about electrical connection dates. One NHH ICP was identified at this status. ICP 0099553226CND90 was incorrectly updated to this status due to human error, and was corrected to "Electrically disconnected – vacant" during the audit.

ICP 1001300453LCA79 is a half hour new connection and has been at this status since 6/03/17 and is confirmed to be still in progress.

There were no ICPs found at this status for greater than 24 months.

Inactive Status (excluding new connection in progress)

The status of "Inactive" is only used once a Mercury approved contractor has confirmed that the ICP has been disconnected. Contractors are audited periodically to ensure the appropriate policies and procedures are being complied with. The sample checked of the ICPs at the various inactive statuses aligned with SAP.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.9 With: Clause 19 Schedule 11.1 From: 23-May-17 To: current	One ICP incorrectly at "inactive - new connection in progress" status. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong as the status updates are working as expected and were correct except one ICP due to human error. The audit risk rating is low as only one ICP was found to be non-compliant.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
Error corrected and coaching has been completed.		April 2018	Cleared
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Ongoing coaching		Ongoing	

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

An estimated 75% of Mercury's new connections occur on the Vector network and they have not received any requests of this nature. Any requests received from Distributors are actioned. I also checked any open job requests for new connections and none were found to be open for 24 months or more.

Audit outcome

Compliant

4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

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

Code reference

Clause 2 Schedule 11.3

Code related audit information

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

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

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

Audit observation

The switch gain process was examined to determine when Mercury deem all conditions to be met. A sample of five ICPs using the typical sampling methodology were checked to confirm that these were notified to the registry within two business days.

Audit commentary

Mercury's processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. NT files are sent as soon as all pre-conditions are met, and the withdrawal process is used if the customer changes their mind. The ICPs checked and confirmed all were sent within two days of all conditions being met.

Audit outcome

Compliant

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

Code reference

Clauses 3 and 4 Schedule 11.3

Code related audit information

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

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

When establishing an event date for clause 4, the losing trader must disregard every event date established by the losing trader for a customer who has been with the losing trader for less than two calendar months (clause 4(2) of Schedule 11.3).

Audit observation

An event detail report for the audit period was reviewed to identify AN files issued by Mercury during the audit period. A sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied.

The switch breach report was examined for the audit period.

The event detail report was analysed to assess compliance with the requirement to meet the setting of event dates requirement.

Audit commentary

The check of the AN codes found all were correct with the exception of:

- the AA code was sent for two AMI ICPs, when the AD code should have been sent.

I note that the AD code is being used applied in the sample of AD response codes checked.

The use of AN codes in switching is under review as part of the switching technical group review. Dependant on the outcome of this the system logic will be reviewed to correct the use of AA for sites with AMI metering. The incorrect code being sent is recorded as non-compliance below.

The MEEN switch breach report was checked and found nine late AN files recorded. All of these were checked and found that the switch was withdrawn, but this did not occur until after the AN file was due to be sent and therefore these are valid breaches.

The event detail report for MEEN identified 7,054 TR switch losses received. These were analysed and found 7050 or 99.9% had the event date set to five days or less and none were set for greater than ten business days. Mercury also provided a copy of their own internal reporting which confirmed my analysis. Compliance is confirmed in relation to this requirement.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.2 With: Clauses 3 & 4 of schedule 11.3 From: 01-Jun-17 To: 12-Apr-18	Incorrect sending of the AA AN response code for two ICPs with AMI metering for transfer switches. 16 late AN files. Potential impact: None Actual impact: None Audit history: Once Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	I have rated the controls as moderate as the controls will mitigate errors most of the time. I have recorded the audit risk rating as low as there is no direct effect on settlement outcomes in relation to this clause.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN has identified that a system enhancement is required to rectify AA issue. There is a small enhancement ready to go to update the current SAP logic so that we can ensure our AN files are compliant, however, is on hold as EA is currently exploring Options for the acknowledge switch notification. This is through the Switch Technology group. MEEN would not like to further invest unless the decision has been made. We anticipate EA will make this decision towards the end of August.	2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Awaiting EA decision	2020	

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

Code reference

Clause 5 Schedule 11.3

Code related audit information

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

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

Audit observation

An event detail report for the audit period was reviewed to identify CS files issued by Mercury 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 (this is based on the most recent read to read consumption).

The process to manage the sending of the CS file within five business days of the event date was examined.

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

Audit commentary

As detailed in **section 1.6**, a breach was alleged due to a metering discrepancy which required investigation before the reads could be provided. Mercury elected to complete the switch, rather than withdraw it while the metering issues was resolved and therefore sent a CS file without meter readings. The compliance team considered the breach and found there was a minor operational impact, and steps had been taken to prevent recurrence. No evidence of this re-occurring was found in this audit. All CS files viewed contained meter readings as expected.

The CS file content was checked for accuracy and I found all was correct except:

- The last estimated date being recorded as the last actual read date whenever an estimate is sent.
- SAP is transposing register reads with two registers e.g. 0000029658NT919. This was found through examination of the RR process. It appears that actual reads sent from two register meters are being transposed in the CS file. This is a system issue and a job has been logged with IT to investigate and resolve. This was evident in both transfer and move switches.
- The actual read for the correct event date was not sent for ICP 0000161175UN864. Mercury sent actual reads from 3/9/17 for an event date of 8/9/17. This was identified through examination of the RR processes. This was due to human error.

The MEEN SHD report contained 129 breaches which is a decrease from the 351 breaches recorded in the last audit. All were recorded as breach code "E2". I used the CS files sent from the event detail period of 1/9/17 to 20/2/18 to check the validity of the switch breach reporting. This identified 46 ICPs. For eight of these a CS file was never sent, and the switch was withdrawn for all except ICP 0000029658NT919. The seven ICPs were withdrawn on or before the CS file was due to be sent therefore equating to one late CS file. Of the remaining 38 reported breaches only ICP 0319425339LCED1 was found to be a valid breach.

There were a further seven ICPs coded as breach code "T2" (CS is sent later than three days after NT if an AN is not sent). These were analysed and found they were the same ICPs discussed in **section 4.2**. They were all withdrawn after the AN and the CS were due and are therefore valid breaches.

It appears that the switch breach reporting is still over reporting late CS files, therefore I cannot quantify the total number of late CS files but will record some late CS files.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.3 With: Clause 5 of schedule 11.3 From: 01-Jun-17 To: 20-Feb-18	Incorrect last read date for ICPs that close on an estimate. SAP transposing reads in the CS file for meters with two registers. Actual read not sent for the event date. Some late CS files. Potential impact: Low Actual impact: Medium Audit history: Twice Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	I have rated the controls as weak as the system issue of transposed reads indicates a lack of controls. I have recorded the audit risk rating as moderate as this has a direct impact on other traders and on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
This was a one off operator error and they have been coached. There is no report in place and it's a very rare occurrence. There is also no impact to the customer or the market. The issue of Transposed reads was raised with the MEEN IT team and was resolved on 15.02.18. There has been no occurrence since then	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Mercury will consider what reporting may be needed to identify it in the future.	April 2019	

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 requests was examined.

The event detail report and switch breach report were analysed to identify all read change requests and acknowledgements during the audit period.

A sample of five read change requests (or all were checked if less than five were found) from the event detail report was selected using the diverse sample methodology. The sample included files exchanged with different traders, and a mix of acceptances and rejections.

A sample of five read change rejections and five acceptances was selected from the event detail report using the diverse sample methodology. The sample covered both transfer and gaining trader read requests, and files exchanged with different traders.

The switch breach history report for the audit period was reviewed, and 11 late read change requests were identified for transfer switches and one late acknowledgement were recorded. This is a year on year decrease in the number of late RRs recorded. All were checked to determine delay.

Audit commentary

RR requests are generally initiated via email between the two parties and only once an agreement has been reached is an RR file sent to complete. All RR requests are evaluated and validated against the ICP information. If the request is within validation requirements these are accepted.

The sample checked for the read request acceptances and rejections confirmed compliance.

The late RRs checked found that eight were late due to the initial request being rejected by the losing trader. The remaining three were delayed due to not getting two actual reads within four months. Whilst these are technically late MEEN are compliant with the requirement to provide complete and accurate information.

The one late AC file was due to human error.

I checked switch in readings for a sample of five ICPs with AMI meters where the switch in read was estimated, and no RR request was issued. All readings were found to be correctly recorded.

SAP records any negative reading as implausible, and the read will be locked and not used for billing or reconciliation. Where a switch in read is too high the first read received by Mercury may be lower than the switch read. If the difference is over 250 kWh, Mercury will request a read renegotiation. If the difference is less than 250 kWh Mercury will estimate zero consumption while they wait for actual reads to catch up to and exceed the switch in read. Where they believe it will take an extended period for the actual reads to exceed the switch in reads Mercury will provide a refund to the customer and change the switch read to match the actual read. No examples of this were found during the audit, but this process is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.4 With: Clauses 6(1) and 6A Schedule 11.3 From: 01-Jun-17 To: 20-Feb-18	11 late RR files and one late AC file sent. In some cases where a high switch reading is provided, and an RR is not issued, Mercury will modify the switch reading to match their first actual reading. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as moderate overall as: • in most cases the reads recorded by Mercury match the switch reads, there are isolated instances where the switch read is modified, and no examples were found during the audit • the process to ensure RRs are sent on time is robust with the small volume of late RR evidence of this. The audit risk rating is low because: • the late RRs increase the level of accuracy in reconciliation and only 11 were sent late • no examples of modified switch in reads were identified during the audit.

Actions taken to resolve the issue	Completion date	Remedial action status
This has been referred to EA last year and has been included in the current code review process. It is being discussed in the EA technology group forum. This is specifically to get EA guidance on how to be compliant in situations where a RR is required but it is outside of the allowed timeframe.	2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Awaiting EA confirmation	2020	

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

Code reference

Clause 6(2) and (3) Schedule 11.3

Code related audit information

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

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

Audit observation

The process for the management of read requests was examined. The event detail report and switch breach report were analysed. A sample of five ICPs (or all were checked if less than five were found) for each of the following scenarios were selected using the typical sample methodology from the event detail report. The sample covered both transfer and gaining trader read requests, and a variety of other participants:

- other retailer's request accepted by Mercury
- other retailer's request rejected by Mercury.

Audit commentary

These RR requests are processed in the same way as those received for greater than 200 kWh except that emails are not normally exchanged in advance for these. Each request is evaluated and validated against the ICP information. If the request is within validation requirements these are accepted.

The sample checked found all were compliant.

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

Audit commentary

Mercury confirms 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 Mercury deem all conditions to be met. A sample of five ICPs using the typical sampling methodology were checked to confirm that these were notified to the registry within two business days.

Audit commentary

A sample of ICPs were checked and I confirmed all were sent within two days of all conditions being met.

Audit outcome

Compliant

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

Code reference

Clause 10(1) Schedule 11.3

Code related audit information

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

- *10(1)(a) If the losing trader accepts the event date proposed by the gaining trader, the losing trader must complete the switch by providing to the registry manager:*
    - *confirmation of the switch event date; and*
    - *a valid switch response code; and*
    - *final information as required under clause 11; or*

- *10(1)(b) If the losing trader does not accept the event date proposed by the gaining trader, the losing trader must acknowledge the switch request to the registry manager and determine a different event date that—*
    - *is not earlier than the gaining trader's proposed event date, and*
    - *is no later than 10 business days after the date the losing trader receives notice; or*
- *10(1)(c) request that the switch be withdrawn in accordance with clause 17.*

Audit observation

An event detail report for the period from 1/9/17 to 20/2/18 was reviewed to identify AN files issued by Mercury during the audit period. A sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied.

The switch breach history report for the audit period was reviewed in relation to both late AN and CS files.

The process to manage the sending of the CS file within five business days of the event date was examined.

Audit commentary

The switching process was examined in relation to MEEN as the "losing trader" for a selection of NHH ICPs. The correct code was used except the AA code which was sent when both examples checked were AMI sites, and therefore the AD code should have been sent. I note that the AD code is being applied correctly in the sample of ANs with AD response codes checked. As discussed in **section 4.2,** the use of AN codes in switching is under review as part of the switching technical group review. Dependant on the outcome of this the system logic will be reviewed to correct the use of AA for sites with AMI metering. The incorrect codes being sent are recorded as non-compliance below.

The MEEN switch breach report was checked and found 87 late AN files recorded. All of these were checked and found only six to be valid breaches. The six late AN files were all TOU HHR category 2 sites and as discussed in **section 4.13**, the time waiting for the sales team to respond to the switching team before they can respond to the NT is causing delays.

Mercury use the switch breach report to manage the switch completion process. AMI reads are being pulled through where available, so these switches do not get held. The Mercury SHD report contained 832 late CS file breaches: Three of these are recorded as "CS" file breaches. These were checked and found all to be compliant. The remaining 799 ICPs were recorded as "E2" breaches. I used the CS files sent from the event detail period of 1/9/17 to 20/2/18 to check the validity of the switch breach reporting. This identified 33 switches where I could align the NT received file with the CS being sent. All were checked, and had a CS file sent within five business days of the NT being received. I found no valid breaches.

The switch breach report recorded 86 "T2" coded switch breaches (CS is sent later than three days after NT if an AN is not sent), these were the same ICPs recorded as late AN files and an AN must be sent before a CS for switch moves therefore I have disregarded these breaches. Compliance is confirmed in relation to this requirement.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.8 With: Clause 10 of schedule 11.3 From: 01-Jun-17 To: 20-Feb-18	Incorrect sending of the AA AN response code for sites with AMI metering for move switches. Six late AN files. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate, as with the exception of the category 2 TOU sites files are being sent within the required timeframes. I have recorded the audit risk rating as low as there is no direct effect on settlement outcomes in relation to this clause.

Actions taken to resolve the issue	Completion date	Remedial action status
Same as 4.2 MEEN would need a system enhancement required to rectify AA issue. There is a small enhancement to update the current SAP logic so that we can ensure our AN files are compliant, however, is on hold as EA is currently exploring Options for the acknowledge switch notification. MEEN would not like to further invest unless the decision has been made.	2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Awaiting EA confirmation	2020	

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 setting of event dates for the 14,895 switch moves recorded was examined. The event detail report for the audit period was examined comparing the NT requested event date with the AN event date sent by Mercury for any switches dated earlier than the NT requested date. Analysis of these identified 798 switches where the event dates could be aligned. The report was also checked for any event dates that were set greater than ten days from the NT receipt date and a sample of ten checked using the extreme case sample methodology.

Audit commentary

Analysis found 15 ICPs (1.8%) of the 798 ICPs where the event date was set earlier than the requested event date. This is with IT to investigate and resolve. The CS was sent for the gaining trader's requested date in all instances so there is no impact on reconciliation, but the AN information in these instances is misleading.

Analysis found only one ICP where the proposed event date was set greater than ten days in advance. This was checked on site and found it was due to human error. The issue identified in the last audit of the event date being set greater than ten days in advance has been fixed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.9 With: Clause 10(2) Schedule 11.3 From: 01-Sep-17 To: 20-Feb-18	15 ICPs where the event date was set earlier than the gaining traders requested date. 1 ICP where the event date was set greater than ten business days from the NT receipt date. Potential impact: Low Actual impact: None Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as the controls will mitigate risk most of the time but there is room for improvement. The audit risk rating is low as the CS was sent for the gaining trader's requested date in all instances so there is no impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
IT looking into this as system logic issue (not performing as expected). This is under investigation.	October 2018	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Raised with IT and preventative action will be based upon the outcome.	April 2019	

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

An event detail report for the audit period was reviewed to identify CS files issued by Mercury 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 (this is based on the most recent read to read consumption).

Audit commentary

The CS file content was checked for accuracy and found all was correct except:

- The last estimated date being recorded as the last actual read date whenever an estimate is sent.
- SAP is transposing register reads with two registers e.g. ICP 0006138911WEA9F. This was found through examination of the RR process. It appears that actual reads sent from two register meters are being transposed in the CS file. This is a system issue and a job has been logged with IT to investigate and resolve. This was evident in both transfer and move switches.
- The actual read for the correct event date was not sent for ICP 0006467288RNDBA. Mercury sent actual reads from a date prior. This was identified through examination of the RR processes. This was due to human error.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 11 of schedule 11.3 From: 01-Jun-17 To: 20-Feb-18	Incorrect last read date for ICPs that close on an estimate. SAP transposing reads in the CS file for meters with two registers. Actual read not sent for the event date. Potential impact: Low Actual impact: Medium Audit history: Twice Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	I have rated the controls as weak as the system issue of transposed reads indicates a lack of controls. I have recorded the audit risk rating as moderate as this has a direct impact on other traders and on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
Same issue as 4.3. where there was an operator error. The system logic has been amended. It's a very rare occurrence. MEEN agree, that the issue will still be there for Non AMI meters. However, Mercury strives to overcome this through focused training and will investigate additional exception reporting. EA to confirm changes to process.	2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Training has occurred and the issue is also being assessed by the Electricity Authority.	2020	

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 four 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 event detail report and switch breach report were analysed to identify all read change requests and acknowledgements during the audit period.

A sample of five read change requests from the event detail report was selected using the diverse sample methodology. The sample included files exchanged with different traders, and a mix of acceptances and rejections.

A sample of five read change rejections and five acceptances (or all were checked if less than five were found) was selected from the event detail report using the diverse sample methodology. The sample covered both transfer and gaining trader read requests, and files exchanged with different traders.

The switch breach history report for the audit period was reviewed, and 33 late read change requests were identified for transfer switches and two late acknowledgements were recorded. Ten of these were checked using a diverse characteristics sample.

Audit commentary

RR requests are generally initiated via email between the two parties and only once an agreement has been reached an RR file is sent to complete. All RR requests are evaluated and validated against the ICP information. If the request is within validation requirements these are accepted. The sample checked found all were validated against two validated meter readings except ICP 0000014809EA6FC, which was based on a photo read from the customer only. This practice was thought have stopped in the last audit, but it appears this is not the case.

The sample checked for the read request acceptances and rejections confirmed compliance.

The 33 late RR files reported this year is of a similar volume than that found in the last audit. A sample of ten of these were checked found that:

- five were late due to the initial request being rejected by the losing trader

- four were delayed due to not getting two actual reads within four months
- one was due to multiple retailers being involved causing delays to resolve within the required timeframe.

Whilst these are technically late Mercury are compliant with the requirement to provide complete and accurate information.:

One late AC file was sent late for ICP 0009111140WMF11. The file failed to send to the registry. A job was logged with IT to resolve this as per the BAU process in these instances, but the delay in resolving this caused it to be late by one day.

I checked switch in readings for a sample of five ICPs with AMI meters where the switch in read was estimated, and no RR request was issued. All readings were found to be correctly recorded.

SAP records any negative reading as implausible, and the read will be locked and not used for billing or reconciliation. Where a switch in read is too high, the first read received by Mercury may be lower than the switch read. If the difference is over 250 kWh, Mercury will request a read renegotiation. If the difference is less than 250 kWh Mercury will estimate zero consumption while they wait for actual reads to catch up to and exceed the switch in read. Where they believe it will take an extended period for the actual reads to exceed the switch in reads, Mercury will provide a refund to the customer and change the switch read to match the actual read. No examples of this were found during the audit, but this process is recorded as non-compliance below.

Audit outcome

Non-compliantNon-compliance	Description
Audit Ref: 4.11 With: Clause 12 Schedule 11.3 From: 01-Jun-17 To: 20-Feb-18	One RR sent without two validated reads being gained. 33 late RR files and one late AC file sent. In some cases where a high switch reading is provided, and an RR is not issued, Mercury will modify the switch reading to match their first actual reading. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as moderate overall as: • in most cases the reads recorded by Mercury match the switch reads, there are isolated instances where the switch read is modified, and no examples were found during the audit • the process to ensure RRs are sent on time is robust with the small volume of late RR evidence of this. The audit risk rating is low because: • the late RRs increase the level of accuracy in reconciliation and only 11 were sent late • no examples of modified switch in reads were identified during the audit.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN have provided further training. We have added an additional control where managers authorisation is required before accepting the change. We anticipate this will resolve the issue.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Training issue – Already in place	Ongoing	

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

Code reference

Clause 13 Schedule 11.3

Code related audit information

The gaining trader switch process applies when a trader has an arrangement with a customer or embedded generator to trade electricity through or assume responsibility for:

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

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

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

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

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

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

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

> *14(4)(a) – the proposed event date is in the same month as the date on which the gaining trader advised the registry manager; or*
>
> *14(4)(b) – the proposed event date is no more than 90 days before the date on which the gaining trader advises the registry manager and this date is agreed between the losing and gaining traders.*

Audit observation

The HHR switch process was examined and a sample of five ICPs using the typical sampling methodology were checked to confirm that these were notified to the registry within two business days.

Audit commentary

The Half Hour team are advised as soon as the contract pre-conditions have been satisfied. All switch requests are actioned the same day as they are received.

Audit outcome

Compliant

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

Code reference

Clause 15 Schedule 11.3

Code related audit information

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

> *15(a) - provide to the registry manager a valid switch response code as approved by the Authority; or*
>
> *15(b) - provide a request for withdrawal of the switch in accordance with clause 17.*

Audit observation

The HHR switch process was examined and the event detail report and switch breach report were analysed to identify all HHR switch files sent during the audit period. The switch breach report recorded five AN breaches and these were all analysed.

Audit commentary

A switching console has been put in place in February this year to manage HHR switch losses. The NT receipt starts the process. The HHR team push this through to sales team to review and once cleared an AN is sent or NW as appropriate. Analysis of the four late AN files recorded found all four were valid breaches. These were checked and found two were late due the delay in waiting for the sales team to confirm if the switch should be accepted or withdrawn and the remaining two were late due to staff leave.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.13 With: Clause 15 Schedule 11.3 From: 08-Aug-17 To: 09-Jan-18	Four late ANs. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as the switch console will mitigate risk most of the time. The audit risk rating is low due to the small volume of late ANs.

Actions taken to resolve the issue	Completion date	Remedial action status
Regarding the late AN file issue, MEEN have reviewed our processes and have improved our management of the breach report. EA is also reviewing the AN issue through their technical group.	2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Breach Report	April 2018	

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 HHR switching process was examined and the switch breach report was analysed. The switch breach report recorded seven late CS files. These were all examined.

Audit commentary

The CS file process was being managed manually until the beginning of April when the management of these was added to the switching console. The seven late CS files recorded were examined and found four were due to staff leave and the remaining three were due to the manual process in place to at the time to manage these.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.14 With: Clause 16 of schedule 11.3 From: 01-Jun-17 To: 20-Feb-18	Seven late CS files. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as the switch console will mitigate risk most of the time. I have recorded the audit risk rating as low as the HHR CS is for notification purposes only. Submission is unaffected by a late CS.

Actions taken to resolve the issue	Completion date	Remedial action status
Operator error. Coaching has occurred and access to a technological solution provided.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Ongoing coaching	Ongoing	

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

Code reference

Clauses 17 and 18 Schedule 11.3

Code related audit information

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

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

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

Audit observation

The switch withdrawal process was examined. The content of a sample of two ICPs for each withdrawal code from the event detail report were checked using the typical sampling methodology.

A sample of five switch rejections were checked using the typical sample methodology.

The switch breach report was examined. 101 late switch withdrawals were recorded. I examined 92 of these and found them all to be invalid breaches. I examined the event detail report to the confirm timeliness of switch withdrawal requests. This identified 58 ICPs (0.007%) of 7,374 withdrawal requests that were backdated greater than two months from the event date. A sample of ten of these were checked using the extreme case methodology.

The switch breach report was checked for any late switch withdrawal acknowledgements and found seven recorded. These were all checked and found to be valid breaches.

The switch breach report recorded two "WC" breaches for not resolving a switch withdrawal within ten business days. These were examined.

Audit commentary

Each switch withdrawal request is assessed and actioned based on the staff members findings. The sample was checked and in all cases the withdrawal reason provided were accurate with the exception of ICP 0267709196LC000 (category 2 TOU half hour site) which was withdrawn for reason code "UA". The switch withdrawal was sent as the sales person had been unable to get in touch with the customer and the withdrawal was sent to gain more time to get in touch with the customer. This is recorded as non-compliance in **section 2.1** for providing misleading information.

The sample checked for the rejected switch withdrawals checked found all were valid withdrawal rejections. The switch breach report recorded two "WC" switch breaches and I found both were delayed due to Mercury incorrectly rejecting the first withdrawal request. ICP 0005611512RN3A4 was rejected due to human error (staff training has since been undertaken to address this). ICP 1000503581PC3F6 was rejected as Mercury expected an email to accompany this switch withdrawal request but the other retailer's systems are set up to automatically reject transfer switch requests on vacant ICPs (WS code) so no email is sent. As these were the only two "WC" coded breaches it suggests that the vast majority of switch withdrawals are processed correctly.

The sample checked of backdated switch withdrawals found:

- six were due to double withdrawals
- two were due to date failure (requested for incorrect gain dates)
- one was due to customer request - this was rejected by the other trader
- ICP 0183983319LCC59 appears to have been sent due to human error and was rejected.

The seven late AW files were examined and found six were late due to two file failures which had to be resolved by IT and this caused these to be received a day late at the registry. The remaining ICP was part of a double withdrawal and the AW could only be sent once the NW sent by Mercury to the alternative trader was accepted.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.15 With: Clauses 17 & 18 of schedule 11.3 From: 01-Jun-17 To: 20-Feb-18	58 switch withdrawals sent later than 2 months of the event date. 2 switch withdrawals not resolved within ten business days. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as controls mitigate risk most of the time, but a small number of human errors were evident. The audit risk rating is low as the volume of backdated switch withdrawals is low but processing of these increases submission accuracy.

Actions taken to resolve the issue	Completion date	Remedial action status
We have a robust process in place. The 2 instances switch withdrawals was to due inbound NW in SAP was not loaded due to MEEN attempting to send the NW as well and is a human error. Coaching has been provided to mitigate this issue.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
On going coaching as required.	Ongoing	

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

All meter readings used in the switching process are validated meter readings or permanent estimates. This process is discussed further in **Section 4.3.**

Mercury's policy 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 contact 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 to confirm that Mercury is not a save protected retailer.

Winback processes were examined to determine whether they are compliant.

I checked the event detail report for all withdrawn switches from the audit period, to identify any withdrawn switches with a CX code applied prior to the switch completion date in relation to any switch save protected retailers.

Audit commentary

MEEN exclude any switch save protected retailer files from their pre switch completion save programme, and all staff have been trained in relation to these requirements. The event detail report was checked and found two "CX" coded switch withdrawal requests for switch protected traders that were sent prior to the switch completion date. The phone calls from the customers were provided in both instances and this confirmed that the customer initiated the withdrawal.

Audit outcome

Compliant

5. MAINTENANCE OF UNMETERED LOAD

5.1. Maintaining shared unmetered load (Clause 11.14)

Code reference

Clause 11.14

Code related audit information

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

> *11.14(2) - The distributor must give written notice to the traders responsible for the ICPs across which the unmetered load is shared, of the ICP identifiers of the ICPs.*
>
> *11.14(3) - A trader who receives such a notification from a distributor must give written notice to the distributor if it wishes to add or omit any ICP from the ICPs across which unmetered load is to be shared.*
>
> *11.14(4) - A distributor who receives such a notification of changes from the trader under (3) must give written notice to the registry manager and each trader responsible for any of the ICPs across which the unmetered load is shared.*
>
> *11.14(5) - If a distributor becomes aware of any change to the capacity of a shared unmetered load ICP or if a shared unmetered load ICP is decommissioned, it must give written notice to all traders affected by that change as soon as practicable after that change or decommissioning.*
>
> *11.14(6) - Each trader who receives such a notification must, as soon as practicable after receiving the notification, adjust the unmetered load information for each ICP in the list for which it is responsible to ensure that the entire shared unmetered load is shared equally across each ICP.*
>
> *11.14(7) - A trader must take responsibility for shared unmetered load assigned to an ICP for which the trader becomes responsible as a result of a switch in accordance with Part 11.*
>
> *11.14(8) - A trader must not relinquish responsibility for shared unmetered load assigned to an ICP if there would then be no ICPs left across which that load could be shared.*
>
> *11.14(9) - A trader can change the status of an ICP across which the unmetered load is shared to inactive status, as referred to in clause 19 of Schedule 11.1. In that case, the trader is not required to give written notice to the distributor of the change. The amount of electricity attributable to that ICP becomes UFE.*

Audit observation

The registry list was reviewed and found Mercury has 103 ICPs with shared unmetered load.

I reviewed the processes to identify shared unmetered load.

Audit commentary

This is checked regularly as part of the registry discrepancy process.

The unmetered load is not recorded in the recommended format for 13 of the ICPs and therefore the load could not be verified. The remaining 90 ICPs were checked, all had the correct load and the UML flag "Y".

Audit outcome

Compliant

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

Code reference

Clause 10.14 (2)(b)

Code related audit information

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

Audit observation

Examination of the MEEN list file found 1,081 active ICPs have unmetered load recorded, excluding shared unmetered load. The volume of unmetered ICPs has increased due to the unmetered telco ICPs that switched in during the audit period. 30 ICPs were identified as having a load of between 3-6,000 kWh. 18 ICPs of these have a UML load that exceeds 6,000 kWh. These were all examined.

Audit commentary

The 30 ICPs with a load between 3-6,000 kWh were all of an approved load type.

18 ICPs had a load greater than 6,000 kWh. Nine of these are of an approved load type and are managed as distributed unmetered loads as detailed in **section 5.4**. The remaining nine ICPs were all examined and found:

ICP	Annual Consumption	Mercury Comment	Veritek Comments
0000190118TR62B	2,000,666	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating
0001261460UN08E	37,931	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating
0001393839UN86B	13,701	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating
0001409085UN545	37,931	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating
0007106261RN1C3	66,065	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge	Investigating

ICP	Annual Consumption	Mercury Comment	Veritek Comments
		of installations. Mercury is working with the customer to establish a database.	
0007143499RN973	15,943	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating
0007145198RN5F3	30,660	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating
0007146145RN50A	8,030	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating
1001146090UN1CE	15,669	Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	Investigating

These ICPs switched into Mercury on 9/6/2017 and there is no validation in place to confirm the loads are of an approved type or there is a database available to validate them against. Mercury are working to resolve these by either creating a database for the load or ICPs to account for the items of load associated.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.2 With: Clause 10.14 (2)(b) From: 06-Jun-17 To: 20-Feb-18	Ten standard unmetered ICPs with greater than 6,000 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Weak Breach risk rating: 6

Audit risk rating	Rationale for audit risk rating
Medium	The controls are rated as weak as these have been with Mercury since June 2017 but are yet to be resolved. The audit risk rating is medium as the combined volume will, if incorrect, have an impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
As above. Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	April 2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Regular reviews of UML sites for discrepancies. MEEN is also looking to document UML processes for different scenarios including on-boarding to reduce discrepancies between databases.	April2020	

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

Code reference

Clause 10.14 (5)

Code related audit information

If the unmetered load limit is exceeded the retailer must:

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

Audit observation

Examination of the MEEN list file found nine active ICPs have unmetered load that exceeds 6,000 kWh and are not identified and managed as distributed unmetered load. The process to manage these loads was examined.

Audit commentary

Loads of this type are managed through the commercial team.

As detailed in **section 5.2**, there are nine ICPs that switched in on 9/6/17. These are in the process of being corrected but this has not been completed within the 20 business days as required by this clause.

I note that due to the complexities of such loads it is difficult to comply with the 20 days allowed, but also note that they have been with Mercury for ten months and are yet to be resolved.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.3 With: Clause 10.14 (5) From: 06-Jun-17 To: 20-Feb-18	Nine ICPs with greater than 6,000 kWh per annum not corrected within the required timeframe. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak as these have been with Mercury since June 2017 but are yet to be resolved, suggesting controls are weak. The audit risk rating is medium as the combined volume will, if incorrect, have an impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
Same as 5.2. As above. Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	April 2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Same as 5.2. Regular reviews of UML's and documenting a consistent process	April 2020	

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

Mercury has nine known distributed unmetered load databases. **Section 5.2** has identified nine ICPs that are potentially distributed unmetered loads and **section 3.7**, identifies ICP 0015723581ELA43, that is potentially distributed unmetered load across more than one NSP. All of the known distributed unmetered load databases with the exception of ICP 1000023063BPC22 (Minginui Village that due to the lack of database detail an audit is not able to be undertaken) will be audited by June 1st, 2018 as required and as this is after the date this audit is due some of the reports will be submitted after this report. The summary of those completed are detailed in the table at the end of this section.

Audit commentary

The table below indicates all of the DUML databases held by Mercury and the current level of compliance.

		Compliance Achieved (Yes/No)								
Database	DUML Audit completed 16A.26 and 17.295F	Deriving submission information 11(1) of schedule 15.3	ICP identifier 11(2)(a) of schedule 15.3	Location of items of load 11(2)(b) of schedule 15.3	Description of load 11(2)(c)&(d) of schedule 15.3	All load recorded in database 11(2A) of schedule 15.3	Tracking of load changes 11(3) of schedule 15.3	Audit trail 11(4) of schedule 15.3	Database accuracy 15.2 and 15.37B(b)	Volume information accuracy 15.2 and 15.37B(c)
Palmerston North Airport-	02/08/2017	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Rotorua Lakes DC	8/5/18	No	No	Yes	No	Yes	Yes	Yes	No	No
Matamata Piako DC	29/4/18	No	Yes	Yes	No	No	Yes	Yes	No	No
Avondale Business Association	13/5/18	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Ardmore	13/5/18	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
NuLite	13/5/18	No	Yes	Yes	No	No	Yes	Yes	No	No
Acacia Cove	13/5/18	No	Yes	No	No	Yes	No	Yes	No	No
Metrix Gatekeeper ICPs	15/5/18	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Minginui Village	No audit undertaken due to insufficient data in the database	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.4 With: Clauses 11(1) of schedule 15.3, 10.14 & 15.13 From: 01-Jun-17 To: 20-Feb-18	Errors found in eight databases. The specific findings are detailed in the DUML database audit reports. Potential impact: High Actual impact: High Audit history: Multiple Controls: Weak Breach risk rating: 9

Audit risk rating	Rationale for audit risk rating
High	The controls are rated as weak due to the level of errors found. The impact is assessed to be high, based on the kWh differences found in the DUML audits

Actions taken to resolve the issue	Completion date	Remedial action status
As above. Dummy ICP and or database missing from the previous retailer and no previous audits conducted for the sites. Customer has limited to no knowledge of installations. Mercury is working with the customer to establish a database.	April 2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Mercury will look to document an internal DUML database and billing process that can be applied on a consistent basis to DUML sites.	May 2020	

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

A registry list for 1 September 2017 to 21 February 2018 was examined to confirm whether Mercury had supplied any ICPs with generation during the audit period.

Audit commentary

The list file contained 2,624 active ICPs with distributed generation recorded by the Distributor. All had RPS, HHR or HHM profiles. A sample of ten ICPs with RPS profile on the registry and generation indicated by the distributor were checked. I found the PV1 profile was correctly applied on the AV080 NHH submissions for NHH ICPs with generation, but the PV1 profile was not recorded against the ICPs on the registry. The incorrect profiles on the registry are recorded as non-compliance below.

2534 of the 2624 ICPs have injection registers, 90 ICPs have no injection/export metering recorded on the registry. Population of distributed generation details on the registry is a MEP requirement and not the responsibility of the retailer, but it is the retailer's responsibility to ensure that electricity is quantified in accordance with the code. A typical sample of ten ICPs without injection/export metering were reviewed to determine whether distributed generation was present:

- eight of the ICPs have since had generation metering installed, and generation consumption is being measured and reported in accordance with the code
- for two ICPs, the Premise and Metering team is trying to contact the customer to confirm whether generation is installed and once confirmed, the Premise and Metering team will arrange for generation metering to be installed if generation is present.

The previous audit recommended that discrepancy reporting for distributed generation should consider ICPs where the installation type is L and other generation fields are populated, as well as ICPs with installation type B. The 2018 audit identified six active ICPs with installation type L and other generation fields populated, in all these cases, Mercury's import/export metering is installed if generation is present. The issue has been resolved.

Two other recommendations made in the previous audit relating to confirming whether generation is installed and installing import/export metering have been implemented.

Mercury provided a list of 45 ICPs where remote disconnection had occurred then the meter had been bridged to reconnect. The existence of bridged meters is recorded as non-compliance below. Corrections to capture the bridged consumption are discussed further in **section 8.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: Clause 10.13 From: 01-Jun-17 To: 12-Apr-18	While meters were bridged, energy was not metered and quantified according to the code for nine ICPs. NHH ICPs with distributed generation do not have the PV1 profile recorded on the registry. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate as they are sufficient to reduce the risk most of the time. The audit risk rating is low • 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. For all 11 examples reviewed, corrections for consumption during the bridged period had been processed. • Correct profiles are applied for reconciliation submissions.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN has modified the process used to identify and address these sites. Training has also occurred to ensure operators are aware and follow the process.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Ongoing coaching	Ongoing	

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

Code reference

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

Code related audit information

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

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

The participant responsible for the metering installation must:

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

Audit observation

The NSP table was reviewed to confirm the GIPs which Mercury is responsible for, and the certification expiry date for those GIPs.

Changes to the NSP table were reviewed to determine whether they had been processed accurately.

Audit commentary

Mercury is responsible for the GIPs shown in the table below. Certification was current for all metering installations at the time of review.

Responsible party	Description	NSP	MEP	Certification expiry date (NSP table)	Reconciliation Type
MRPL	ARATIATIA	ARA2201MRPLGG	MRPL	11/11/2018	GG
MRPL	ARAPUNI	ARI1101MRPLGG	MRPL	13/01/2020	GG
MRPL	ARAPUNI	ARI1102MRPLGG	MRPL	8/05/2019	GG
MRPL	ATIAMURI	ATI0111LINENP	MRPL	7/02/2021	NP
MRPL	ATIAMURI	ATI0111MRPDNP	MRPL	9/11/2018	NP
MRPL	ATIAMURI	ATI0112HAWKNP	MRPL	6/08/2018	NP
MRPL	ATIAMURI	ATI0112MRPDNP	MRPL	6/08/2018	NP
MRPL	ATIAMURI	ATI2201MRPLGN	MRPL	18/05/2018	GN

Responsible party	Description	NSP	MEP	Certification expiry date (NSP table)	Reconciliation Type
MRPL	KAWERAU GEOTHERMAL	KAW1101KRGLGG	MRPL	27/08/2019	GG
MRPL	KARAPIRO	KPO1101MRPLGG	MRPL	8/06/2018	GG
MRPL	MARAETAI	MTI2201MRPLGG	NAPJ	14/06/2018	GG
MRPL	NGATAMARIKI	NAP2202MRPLGG	MRPL	4/09/2018	GG
MRPL	OHAKURI	OHK2201MRPLGG	MRPL	4/12/2020	GG
MRPL	SOUTHDOWN	SWN2201MRPLGG	MRPL	1/02/2020	GG
MRPL	WHAKAMARU	WKM2201MRPLGG	MRPL	16/08/2020	GG
MRPL	WHAKAMARU	WKM2201TUARGN	MRPL	7/07/2019	GN
MRPL	WAIPAPA	WPA2201MRPLGG	MRPL	23/02/2021	GG

The process to make changes to the NSP table was stepped through, and changes to the NSP table in the past year were reviewed. The Mercury Senior Electrical Engineer advises the Mercury Energy Services team of any changes to the NSP table required via email. The Energy Services team create an AV180 report detailing the NSP changes and submit it to the Reconciliation Manager. For all changes reviewed, the details provided to the Reconciliation Manager matched the information provided by the Senior Electrical Engineer.

Three certification expiry date changes were processed more than 10 business days after re-certification. This is recorded as non-compliance below.

NSP	Certification expiry date	Meter certification date	Date updated	Days between cert and update
KAW1101KRGLGG	27/08/2019	26/06/2016	19/02/2018	603
KPO1101MRPLGG	8/06/2018	5/06/2015	19/02/2018	990
OHK2201MRPLGG	1/04/2018	4/12/2017	19/02/2018	77

During the 2016 audit, Mercury advised that ATI2201 should be recorded with reconciliation type GG not GN. This was checked with a senior electrical engineer during the audit, who confirmed that the NSP is correctly recorded with a reconciliation type of GG.

No new NSPs were created during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.2 With: Clause 10.26 (6), (7) and (8) From: 01-Jun-17 To: 19-Feb-18	Three meter certification expiry dates were updated late. Potential impact: Low Actual impact: None Audit history: Once previously Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are assessed as weak. The registry was updated within three business days of receiving the request from the Mercury Senior Electrical Engineer, but the request to update the data was issued well after the certification date. The risk is low because the meters were appropriately certified at all times.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN surveyed a sample of 30 compliance certificates for our generation assets and found the following results: Average certificate delivery time: 21.5 days Minimum delivery time: 1 day Maximum delivery time: 69 days The longer delivery times are usually due to the requirement of the EA for the testing house to perform on-load testing following certification in all cases. If an installation for an out-of-service generator is certified the on-load tests in some cases cannot occur until many weeks later and the timing for the on-load testing is often a moving variable with many dependents.	2020	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Raise with EA the findings of the above sampling to identify ways of complying within the required timeframes.	2020	

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

A registry list with history was reviewed for 1 September 2017 to 21 February 2018 to determine the profiles assigned by Mercury and whether they require control device certification.

Audit commentary

Mercury has applied the DFP, HHR, HHM, PTM, RPS, and UML profiles during the period.

The profiles used by Mercury do not rely on 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.

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

Audit commentary

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

I reviewed ten examples of potential defective meters, including ten bridged meters and ten stopped or faulty meters. In all cases a field services job was raised and the MEP advised.

Because AMS and EDMI's audits were completed more than seven months ago, I checked defective meters identified since their May 2017 audits and noted that corrections had been processed where necessary. HHR corrections are discussed in **section 8.2**.

Audit outcome

Compliant

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

Code reference

Clause 2 Schedule 15.2

Code related audit information

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

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

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

Mercury's agents and MEPs are responsible for the collection of HHR and AMI data. Collection of data and clock synchronisation were reviewed as part of their agent and MEP audits.

Audit commentary

All information used to determine volume information is collected from the services interface or the metering installation by Mercury, one of their agents, or the MEP.

Compliance with this clause has been demonstrated by Mercury's agents and MEPs as part of their agent audits. Because AMS and EDMI's audits were completed more than seven months ago, I confirmed that there were no issues with HHR data collection processes or clock synchronisation since their May 2017 audits.

Clock synchronisation event information is emailed to Mercury by its agents and MEPs. No recent examples of HHR clock synchronisation events requiring action had been received by Mercury. I reviewed some recent examples of clock synchronisation events sent by AMS and Metrix for AMI meters and noted that no action by Mercury had been required.

Mercury's generation engineers monitor generation consumption and metering in real time and notify Energy Services if any issues are identified.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

All validated meter readings must be derived from meter readings.

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

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

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

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

Audit observation

The data collection process was examined. A sample of five meter reads for Wells were checked 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

Readings are appropriately labelled. I checked five readings for Wells to confirm the data in SAP matched the data in the files.

Wells provides information on meter condition along with the daily reads. This meter condition information is pulled into the readers' notes database. It is possible for staff to run queries to identify ICPs where meter condition issues, such as tampering or damage are present. Staff work through the notes provided each day, and the database is used to provide additional information and support when investigating ICPs. Suspected tampering and faulty meters are addressed as top priority. I walked through the review process, including checking examples of missing and broken seals, tampering and damage and unsafe situations. I noted that field services jobs had been raised to resolve issues where required.

Wells also provide a monthly summary report containing all tampering events.

Customer readings are handled manually, and may be provided by telephone, in writing or by sending in a photograph of their meter. Customer reads are entered into SAP with type 01-02 (customer) after being validated against another set of actual readings provided by an MEP or agent. I reviewed three

examples of customer readings and found that all had been appropriately validated against actual readings from other sources and were correctly classified.

Wells records customer readings in their meter reader notes. On initial import they fail validation due to the read type being customer, and during the validation checks the customer read is entered manually with read type 01-02 (customer).

If unvalidated, or there are any concerns about the accuracy of a customer reading they will be loaded with a read type of unbillable.

Audit outcome

Compliant

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

Code reference

Clause 6 Schedule 15.2

Code related audit information

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

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

Audit observation

The process of the application of meter readings was examined.

Audit commentary

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 sample of five readings each for Metrix (including Counties Power), AMS, Smartco, Arc and Wells. 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.

A sample of 24 ICPs unread during the period of supply were reviewed to determine the reasons they were unread.

Audit commentary

Mercury has continued to improve their read attainment processes during the audit period.

The Energy Services team provides a monthly no reads report, which shows ICPs unread in the previous four and 12 months. The risk control team works through these reports starting with the sites that are unread for the longest period and adds comments to the report detailing any action taken. Any previous work done to obtain a read for the site is considered during this review.

I saw evidence that vacant sites were passed on to the vacant team, and communication and metering issues were referred to the Premise and Metering team so that field services jobs can be raised. For access issues the Risk Control team works with the customer to resolve the issues or arrange for AMI metering to be installed.

Non-communicating meters are also identified by the Meter Validations team, and MEPs provide information on non-communicating meters so they can be moved to manual meter reading routes and field services jobs can be raised. Meters with intermittent communications are harder to identify and continue to cause read attainment issues. Mercury normally imports one AMI read per month on the scheduled read date. Where a read is not available on the scheduled read date, an estimate is entered on the read date and billed. If an actual read is available on a nearby date, the read will be imported into SAP but marked as unbillable. Unbillable reads are not used for reconciliation, billing or read attainment reporting. This practice affects Mercury's read attainment results, submission accuracy and historic estimate proportions. To ensure good customer service, Mercury will only reverse and rebill if the read will result in a material difference to the customer's invoice.

In general, the Risk Control team is still working through the ICPs unread for 12 months by the time the next month's report is received from Energy Services. Mercury is testing a new partially automated read attainment process which is expected to be implemented in May 2018. The new process will generate emails, texts, and letters to customers whose ICPs have not received reads for three months or six months. The process to change ICPs between AMI and manual meter reading routes will also become more automated. These changes are expected to further improve meter read attainment.

I observed an alert built into SAP, where a message pops up if a customer account is viewed where no actual reads have been received for the past 90 days. This prompts the staff member speaking to the customer to discuss the meter reading issues if the customer makes contact.

Mercury provided a list of 133 ICPs unread during the period of supply, where the period of supply ended between 1 June 2017 and 31 January 2018. 109 of the ICPs were supplied for less than 80 days. I reviewed all 24 ICPs supplied for more than 100 days to determine the reason reads where not attained, and action taken to attain readings:

- in 16 cases, exceptional circumstances applied, or the best endeavours requirement was met.
- in the other eight cases, exceptional circumstances did not apply, and the best endeavours requirement was not met.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 01-Jun-17 To: 31-Jan-18	The best endeavours requirement was not met for eight ICPs unread during the period of supply. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak, because they are not sufficient to ensure that ICPs supplied for less than 12 months will consistently receive at least one actual read. The planned process improvements are expected to increase the control strength to moderate. The risk is rated as low, as only a small number of ICPs were affected.

Actions taken to resolve the issue	Completion date	Remedial action status
Identified that the process gap leading to non-compliance relates to short term customers who move out before access issues are resolved. This highlighted the need for more timely customer follow-up during the brief period of supply.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Mercury is testing a new partially automated read attainment process which is expected to be implemented in May 2018. The new process will generate emails, texts, and letters to customers whose ICPs have not received reads for three months or six months. This will be a monthly process. The process to change ICPs between AMI and manual meter reading routes will also become more automated. These changes are expected to further improve meter read attainment.	July 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 to December 2017 were provided.

The reports were reviewed to confirm that they were accurate and submitted on time.

A sample of ten ICPs not read in the previous 12 months were reviewed to determine whether exceptional circumstances existed and if Mercury had used their best endeavours to obtain readings.

Audit commentary

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
September 2017	279	93	385	99.79%
October 2017	282	98	390	99.79%
November 2017	283	95	399	99.78%
December 2017	282	89	399	99.77%

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

I reviewed ten ICPs not read in the previous 12 months determine whether exceptional circumstances exist, and if Mercury had used their best endeavours to obtain readings.

- Four ICPs were vacant sites, where access could not be gained to read or disconnect. Exceptional circumstances applied.
- Four ICPs were unread due to access issues, and the best endeavours requirement was met.
- Two ICPs were unread due to meter communication issues, and the best endeavours requirement was met.

I reviewed meter reading reports for September 2017 to January 2018, and confirmed that they met the meter reading frequency report requirements and were sent before the 20th business day of each month.

Audit outcome

Compliant

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

Code reference

Clause 9(1) and (2) Schedule 15.2

Code related audit information

In relation to each NSP, each reconciliation participant must ensure that for each NHH ICP at which the reconciliation participant trades continuously for each four months, for which consumption information

is required to be reported into the reconciliation process. A validated meter reading is obtained at least once every four months for 90% of the non half hour 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 to December 2017 were provided.

A sample of ten ICPs not read in the previous four months at NSPs where less than 90% of ICPs were read were reviewed to determine whether exceptional circumstances existed and if Mercury had used their best endeavours to obtain readings.

Audit commentary

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > 4 months	NSPs <90% read	Total ICPs unread for 4 months	Overall percentage read
September 2017	303	1	2358	98.92%
October 2017	308	13	2653	98.79%
November 2017	308	11	2567	98.84%
December 2017	311	10	2734	98.78%

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

I reviewed a sample of ten ICPs not read in the previous four months determine whether exceptional circumstances exist, and if Mercury had used their best endeavours to obtain readings.

- Eight ICPs belonged to the same account managed customer, and the best endeavours requirement had been met.
- One ICP was unread due to health and safety risks, and exceptional circumstances applied. The issues were later resolved, and readings have since been obtained.
- One ICP was unread due to access issues, and the best endeavours requirement was met.

Audit outcome

Compliant

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 Mercury's agents and MEP's as part of their own audits.

Because Wells' audit was completed more than seven months ago, I confirmed that there have been no changes to Wells' processes that could negatively impact on Mercury's compliance since their May 2017 audit.

Audit outcome

Compliant

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

Code reference

Clause 11(1) Schedule 15.2

Code related audit information

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

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

Audit observation

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

Generation data is collected by Mercury.

Audit commentary

Compliance with this clause has been demonstrated by AMS and EDMI as part of their agent audits. Because AMS and EDMI's audits were completed more than seven months ago, I confirmed that there were no issues with HHR data collection processes since their May 2017 audits.

Generation data is collected by Mercury via the services access interface.

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

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

Generation data is collected by Mercury.

Audit commentary

Compliance with this clause has been demonstrated by AMS and EDMI as part of their agent audits. Because AMS and EDMI's audits were completed more than seven months ago, I confirmed that there were no issues with HHR data interrogation processes since their May 2017 audits.

Generation data is collected by Mercury via the services access interface, and interrogation data is obtained.

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

AMS and EDMI are responsible for meeting the meter interrogation log requirements, and this is reviewed as part of their agent audits.

Generation data is collected by Mercury.

Audit commentary

Compliance with this clause has been demonstrated by AMS and EDMI as part of their agent audits. Because AMS and EDMI's audits were completed more than seven months ago, I confirmed that there were no issues with HHR data collection processes since their May 2017 audits.

Generation data is collected by Mercury via the services access interface, including an interrogation log. Generation data is monitored by Mercury's generation engineers and any events that may affect accuracy are reported to the Energy Services team.

Audit outcome

Compliant

7. STORING RAW METER DATA

7.1. Trading period duration (Clause 13 Schedule 15.2)

Code reference

Clause 13 Schedule 15.2

Code related audit information

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

Audit observation

Trading period duration was reviewed as part of the MEP audits, and AMS and EDMI's agent audits. A sample of five read files each for EDMI and AMS were checked using the typical case sample methodology.

I checked a sample of generation volumes from the source files to SAP for a sample of five NSPs for one day each.

Audit commentary

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

Because AMS and EDMI's audits were completed more than seven months ago, I confirmed that there were no issues with HHR data collection processes since their May 2017 audits.

Review of a sample of HHR meter interrogation logs and generation data confirmed that trading period duration is 30 minutes.

Audit outcome

Compliant

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

Code reference

Clause 18 Schedule 15.2

Code related audit information

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

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

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

Audit observation

Processes to archive and store raw meter data were reviewed. Raw meter data from 2011 was reviewed to ensure that it is retained.

Audit commentary

When this data reaches SAP the level of security is also robust, and unauthorised personnel cannot access data. Metering, Billing, Energy Services and Risk Control staff have access to modify meter reading information in SAP.

I reviewed raw NHH meter data from 2011, and HHR and generation meter data from 2014 recorded in SAP, confirming that meter reading data is retained for at least 48 months.

Readings cannot be modified without an audit trail being created. Validation occurs in a temporary table before it becomes a permanent record and meter readings are not edited. I viewed these audit trails, and they are discussed in further detail in **section 2.4**.

No paper based readings are received.

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

Mercury collects unmetered data in relation to streetlights, and this information is appropriately archived.

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, including examining a sample of corrections.

Audit commentary

Where errors are detected during validation of NHH meter readings, a check reading is performed, or AMI data for surrounding days is reviewed. If an original meter reading cannot be confirmed, an estimated reading is used. These estimates are calculated using data from a period with a quantity and profile similar to the period requiring estimation. The estimated reading is labelled as an estimate and a system note is entered which describes the reason for the change.

Defective meters

Where a meter is found to be stopped or faulty it is replaced. The meter is closed on an estimated read which includes estimated consumption for the affected period, and the new meter is opened on its starting read. Mercury's process is to correct the consumption for the entire period and to then apportion it over the previous 14 months to ensure all consumption is accounted for.

I checked ten examples of suspected stopped or faulty meters to determine whether corrections had been processed.

- For one ICP, the meter was found not to be faulty and no correction was required.
- For six ICPs consumption during the faulty period had been correctly estimated and flowed through to reconciliation submissions.
- For three ICPs there were errors in the correction calculations; the estimated consumption was added to a read prior to the meter removal read resulting in under estimation of consumption during the defective period. This is recorded as non-compliance below.

ICP	Correction Date	Correct estimated read	Applied read	Difference
0002215194WEF25	07/07/2017	4879	4869	10
1001270441LCE84	11/08/2017	53607	53103	504
0000250924UN01C	07/07/2017	34862	34858	4

ICP	Correction Date	Correct estimated read	Applied read	Difference
			Total	**518**

Incorrect multipliers

Five ICPs with incorrect multipliers were identified by Mercury during the audit period. In all cases, the errors were identified and corrected prior to submission and billing.

Bridged meters

When AMI meters have been bridged, the consumption during the bridged period is estimated and flows through to submission files. The meter is closed on an estimated read which captures the estimated consumption during the bridged period, and then restarted on the meter read that applied when the meter was unbridged.

I reviewed ten examples of bridged meters and noted that consumption during the bridged period had been estimated. For ICP 1001295041LC8D8 a calculation error caused an incorrect closing reading (967 instead of 1022), resulting in under reporting of 55 kWh. This is recorded as non-compliance below.

The 2017 audit found ICP 0005246865RN090 was bridged when it switched in. A job was raised and the meter unbridged on 27/03/2017, but a correction was not processed at the time of the last audit. I confirmed that a correction has now been processed.

Consumption while inactive

Consumption that has occurred while an ICP is inactive will only be reported if the status is corrected back to active. Mercury provided a list of 226 ICPs where consumption had been recorded after the ICP became inactive. For 107 of these, the difference was 1 kWh suggesting that the last digit may have been between digits at the time of disconnection and has been read inconsistently.

The historic estimate process apportions consumption between reads to the days that the ICP has been active during the read period. I reviewed an extreme case sample of all 11 ICPs where consumption of over 50 kWh had been detected during a disconnected period. All were appropriately corrected to active status so that consumption flowed through to reconciliation submissions.

During the 2017 audit, I identified five ICPs with consumption after disconnection which had not had their status corrected to active. These were rechecked during the audit; all have been appropriately corrected.

Transposed meters

When a meter reading is found to be transposed, Mercury swaps the readings between registers and the corrected readings are appropriately recorded as estimates. I viewed an example of a transposed meter to confirm this process.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 8.1 With: Clause 19(1) Schedule 15.2 From: 01-Jun-18 To: 12-Apr-18	One correction for a bridged meter and three corrections for defective meters were not processed correctly due to a calculation errors. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate; the issues were caused by the user choosing an incorrect start read and appears to be a training issue. A template is used to calculate the corrections, and the estimated volume was added to an earlier reading instead of the meter removal reading. The impact is assessed to be low, the total under reported is estimated to be 573 kWh.

Actions taken to resolve the issue	Completion date	Remedial action status
This was the result of operator error. Further training has been provided to ensure this does not reoccur. The customers bill has not been corrected due to the adverse customer experience and limited amount of undercharging that MEEN would realise from performing this exercise. There is negligible materiality attached to this issue.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Ongoing coaching	Ongoing	

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.

Audit commentary

Where errors are detected during validation of HHR metering information, and check metering data is not available, then data from a period with a quantity and profile similar to that expected is used. SAP has a dropdown list for the user to select the correction technique. The common techniques are as follows:

- Extrapolate - a previous similar time period is used
- Interpolate - a previous time period is used and the result is permanent
- Divide/multiply - this technique is used for examples like phase failure
- Add - data is added to existing data
- Type in - if a manual calculation is performed or if check metering is used the result can be entered in.

When previous time periods are used, the day of the week is considered, so if data is missing for a Tuesday, the data for the same time period on the previous Tuesday will be considered. Statutory holidays are also taken into consideration. SAP has a built in audit trail for all estimations and corrections.

Mercury and AMS provided four examples of HHR data corrections during the audit period; all were appropriately corrected. In some cases, AMS had calculated the correction and provided replacement data to Mercury as their agent.

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

Mercury does not deal with any loss and compensation arrangements.

Where loss compensation is required, Mercury's HHR agents adjust the data. ICPs requiring loss compensation are identified through the load check process employed at the time of certification or recertification.

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 for MEPs was reviewed as part of their MEP audits.

Audit commentary

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

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 Mercury'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.

Audit outcome

Compliant

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

Code reference

Clause 3(4) Schedule 15.2

Code related audit information

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

3(4)(a) - validated meter readings

3(4)(b) - estimated readings

3(4)(c) - permanent estimates.

Audit observation

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

Audit commentary

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 EDMI. 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 Wells, AMS and EDMI as part of their agent audits.

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 five estimates were reviewed.

Audit commentary

When Mercury has not received data prior to the deadline for providing submission information, then estimated data is provided. There is a requirement to use "reasonable endeavours" to ensure this data is accurate to within 10%.

A sample of five HHR estimates were reviewed. All related to estimation of consumption during a meter change, and consumption was estimated as the average of the trading periods before and after the meter change. Reasonable endeavours were used.

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

Data validation for NHH metering information occurs at multiple levels.

For manually read meters, Wells performs a localised validation within their hand held devices to ensure the reading is within expected high/low parameters. This is described further in the Wells audit report. Wells also provide information on meter condition, where it could affect meter accuracy or safety. This is discussed further in **section 6.6**.

All NHH read data undergoes validation. I viewed the exception reports generated by the validation process, and a sample of data which failed validation.

The read validation process includes:

- identification of reads with invalid dates and times, or a date that does not match the expected read order date, it will also identify obvious data corruption
- checks that the data relates to an ICP, meter, and register held within the system
- checks that the read matches the number of digits expected for the meter
- it is not possible to enter a read for a period which has already been billed, unless the previous invoice is reversed and rebilled.

The billing validation process identifies:

- any outstanding read orders, which are investigated to determine why a read was not received
- high reads and reads lower than the previous read
- if a billing period will be less than ten days, and the invoice is not a final invoice.

Exceptions identified through the billing validation process are reviewed. Validation tools are used to assess whether consumption appears reasonable and include comparisons with historic consumption. Based on the review findings, reads are either validated or left unvalidated. Unvalidated reads are not used by the billing or reconciliation processes.

Zero consumption is checked periodically, a report of all meters with zero consumption is run for one day and worked through until each has been investigated. Mercury's zero consumption process will identify any bridged meters. I confirmed that bridged consumption information is appropriately

estimated and flows through to submission files but found one example that had not been processed correctly. This is raised as non-compliance in **section 8.1**.

Negative consumption is reviewed. SAP records any negative reading as implausible, and the read will be locked and not used for billing or reconciliation. Where a switch in read is too high, the first read received by Mercury may be lower than the switch read. If the difference is over 250 kWh, Mercury will request a read renegotiation. If the difference is less than 250 kWh Mercury will estimate zero consumption while they wait for actual reads to catch up to and exceed the switch in read. Where they believe it will take an extended period for the actual reads to exceed the switch in reads, Mercury will provide a refund to the customer and change the switch read to match the actual read. No examples of this were found during the audit, but this process is recorded as non-compliant below and in **sections 4.4** and **4.11**. It is expected that actual reads should be applied where received, even if that causes negative consumption for an ICP. This ensures that the sum of total consumption reported by the gaining and losing retailer will be correct. If the negative consumption is zeroed out, total consumption reported by the gaining and losing retailer will be overstated. The only exception is situations where the total consumption for the AV080 aggregation line will be negative, which will prevent the report from being uploaded into the allocation portal.

Consumption while inactive is identified by the data analysts. An ICP audit report of identifies all ICPs with an inactive status and consumption. Currently 203 ICPs are on this list. Staff check each ICP to determine whether they are connected and return them to active status and refer them to the Vacant and Disconnection teams if necessary. ICPs with inactive consumption for over three months and the highest inactive consumption are addressed as a priority.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.5 With: Clause 16 Schedule 15.2 From: 01-Jun-18 To: 12-Apr-18	Where a subsequent reading is lower than a switch in reading, consumption may be temporarily zeroed out by creating a zero estimate until reads catch up, or permanently zeroed out by adjusting the switch in read to match the first actual read after switch in. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Any read differences greater than 200 kWh are expected to be dealt with through the read renegotiation process. If consumption is temporarily zeroed out once reads catch up to the switch read, all consumption will be accounted for. Consumption is only permanently zeroed out where it is expected the reads will not catch up to the switch read for an extended period due to very low consumption, and the difference is less than 200 kWh.

Actions taken to resolve the issue	Completion date	Remedial action status
N/R No non-compliance found	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Internal meeting to discuss. We understand that our system cannot bill negative consumption and that negative consumption cannot be reported on as part of the reconciliation process. We have clarified that our actual process involves retaining both the switch read estimate and the actual read but updating our internal record to use the actual read for billing and market reconciliation purposes. MEEN will implement a new process which will request the losing retailer to amend the switch read. If they do not agree and the meter is not moving "catching up", we will do an internal meter detail adjustment so reads are not estimated on an indefinite basis.	April 2019	

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 and observed the HHR, generation, and AMI data validation processes, including checking a sample of data validations and process documentation.

Audit commentary

Electronic data used to determine volume information is provided by MEPs, AMS and EDMI as agents, and by Mercury for generation information.

This function was examined as part of the MEP and agent audits. Because the agent audits were completed more than seven months ago, I confirmed that there were no issues with AMS and EDMI's HHR data collection processes since their May 2017 audits.

HHR

Interrogation occurs regularly so there is little risk that data will be overwritten.

The HHR validation process occurs within SAP, and any exceptions identified through this process are locked so the data will not be used for billing or reconciliation until it is approved. I saw evidence of this process in operation.

The HHR validation process includes:

- a master data check to ensure data is for the correct ICP
- identification of invalid dates and times
- identification of unexpected zero values (these settings are at ICP level and some are set to allow for a certain number of zeros depending on the customer type)
- comparison with expected or previous flow patterns
- max kW for the relevant CT/VT ratio
- negative values.

Each exception is manually reviewed by the Energy Services team. If the data is found to be acceptable it will be manually unlocked, otherwise the data remains locked until investigation is complete. I reviewed examples of exceptions and noted that they were investigated including checking consumption changes with the account manager and customer where necessary.

An automated sum check process compares the register reads to the sum of interval data. The pass/fail threshold is 0.1 kWh per interrogation cycle. There is also a rolling 3-month check between register reads and intervals with a threshold of 0.5 kWh. Mercury will only use data where the register read is on the midnight hour so the comparison can be made without the complexity associated with part intervals. The process ensures days without midnight reads are not missed by comparing data from the previous midnight read to the next midnight read where data is missing. Any failures appear on an exception report to be checked manually and are resolved by importing the exceptions file into SAP.

Missing data is identified through a report run on business day two each month. Any missing data is followed up with the agent, and estimated, if not received before the submission deadline.

HHR meter event information is managed by EDMI and AMS, who email Mercury if events have occurred that require their attention. I reviewed examples of meter change information provided by EDMI and AMS.

Generation

Reads are received via SFTP. They are imported into SAP automatically and validated using the same process as other HHR data.

No event logs are provided. A web based system provides information on any outages or issues, and was viewed during the audit. Generation staff monitor metered consumption and notify the Energy Services team if they become aware of any issues.

Generation data is matched to check meter data, any differences over ± 2% are checked with a generation engineer. For Atiamuri, up to 4 MW may be fed into the local network and is not measured by the check meter system. This is considered when reviewing the differences between the primary and check meter data.

I traced a sample of volumes from the source files to SAP for a sample of five NSPs for one day each and noted that the data matched.

AMI

Mercury receives AMI data from Metrix (for Metrix and Counties Power meters) and AMS (for AMS, Smartco, and Arc meters). As discussed in **section 9.5**, all NHH reads are checked for missing data, invalid dates and times, unexpected zero values, and comparison against consumption history.

The Code requires *"…a review of meter and data storage device event log. Any event that could have affected the integrity of metering data must be investigated."*

Mercury receives emailed meter event information from AMS and Metrix, including lists of non-communicating meters which need to be moved to manual meter reading routes. These metering events are reviewed and actioned, and I saw evidence of field services jobs raised as a result.

Mercury does not currently review the full meter event logs; this is recorded as non-compliance below. Mercury is working with AMS and Metrix to determine where meter event logs are sent and intends to develop a process to review these. I recommend the examination of at least the following events:

- generation consumption indicating unknown solar installations (reverse power)
- phase failure on CT metered installations
- tampering
- large clock discrepancies.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.6 With: Clause 17 Schedule 15.2 From: 01-Jun-18 To: 12-Apr-18	AMI event information not adequately obtained and monitored. 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**
Low	Mercury is monitoring and actioning emailed event information.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN is currently working with MEPS to confirm the definition of event information, then request a report from our smart meter partners Metrix and AMS relevant to Mercury	April 2019	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
As above. Based upon the output of the MEPS reporting additional analytical functionality may need to be implemented.	April 2020	

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

Mercury is not responsible for any generation stations where 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

Mercury is not responsible for any generation stations where 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

Mercury is not responsible for any generation stations where 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

Mercury is not responsible for any generation stations where 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

A registry list was reviewed for the period from 1 September 2017 to 21 February 2018 to confirm the profiles used.

Processes to create buying and selling notifications were reviewed, and trading notifications for new profiles applied during the audit period were reviewed.

Audit commentary

Mercury has applied the DFP, HHR, HHM, PTM, RPS, and UML profiles, and began trading using the PTM profile during the audit period. A notification was provided as required by this clause.

Submissions are checked against open trading notifications prior to submission as part of the NZRM/ALLA file editor checks described in **section 12.3**.

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

I reviewed variances for 17 months of GR100 reports and investigated any large discrepancies.

Audit commentary

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 Mercury files and the RM return file (GR100) for all available revisions for 17 months. Negative percentage figures indicate that the Mercury ICP days figures are higher than those contained on the registry. The discrepancies are very small and consistent.

Month	Ri	R1	R3	R7	R8	R14
Sep 2016	-0.03%	-0.03%	-0.03%	-0.02%	-0.02%	-0.02%
Oct 2016	-0.02%	-0.02%	-0.02%	-0.02%	-	-0.01%
Nov 2016	-0.02%	-0.03%	-0.03%	-0.02%	-	-0.01%
Dec 2016	-0.02%	-0.03%	-0.02%	-0.02%	-	-
Jan 2017	-0.01%	-0.02%	-0.02%	-0.02%	-	-
Feb 2017	-0.01%	-0.02%	-0.02%	-0.02%	-	-
Mar 2017	-0.02%	-0.03%	-0.03%	-0.02%	-	-
Apr 2017	0.56%	-0.03%	-0.03%	-0.02%	-	-
May 2017	-0.02%	-0.03%	-0.04%	-0.02%	-	-
Jun 2017	-0.02%	-0.05%	-0.05%	-0.02%	-	-
Jul 2017	-0.04%	-0.06%	-0.05%	-	-	-
Aug 2017	-0.05%	-0.06%	-0.06%	-	-	-
Sep 2017	-0.05%	-0.06%	-0.04%	-	-	-
Oct 2017	-0.06%	-0.06%	-0.05%	-	-	-
Nov 2017	-0.04%	-0.05%	-	-	-	-
Dec 2017	-0.03%	-0.06%	-	-	-	-
Jan 2018	-0.04%	-	-	-	-	-

Audit outcome

Compliant

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

Code reference

Clause 15.7

Code related audit information

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

> *15.7(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period*
>
> *15.7(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.*

Audit observation

The process for the calculation of as billed volumes was examined by checking five NSPs with a small number of ICPs to confirm the AV120 calculation was correct.

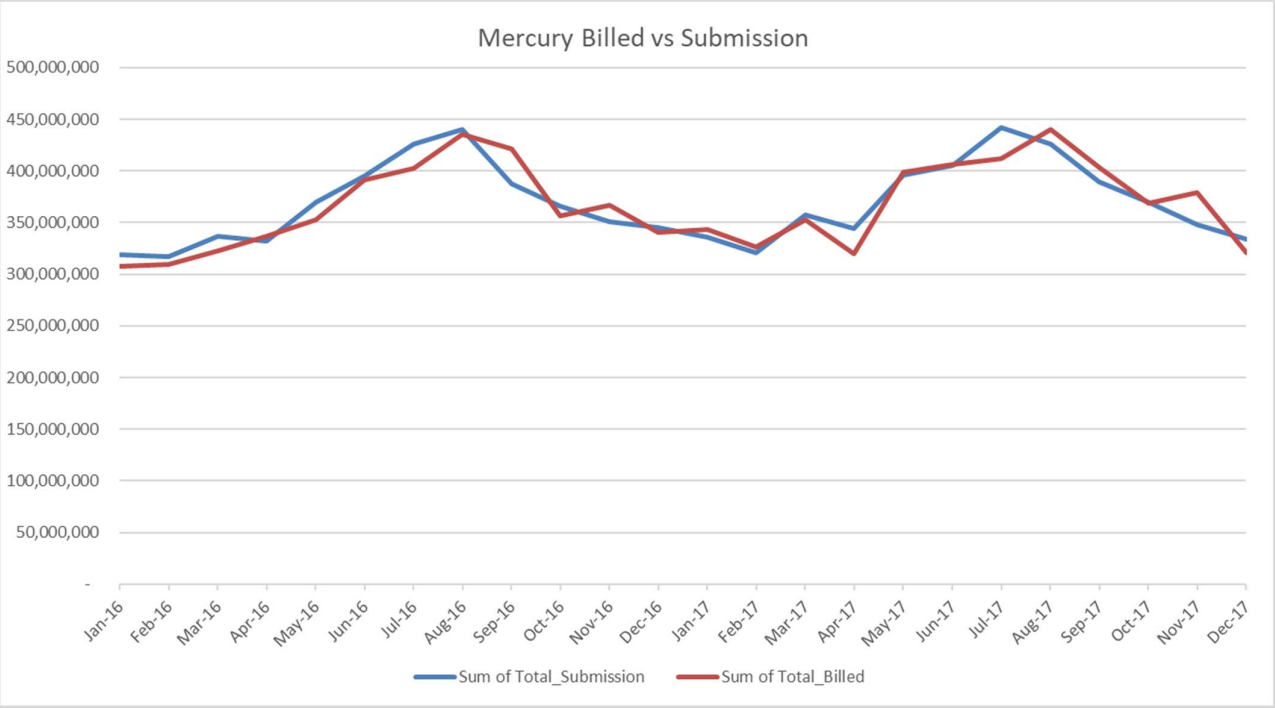
GR130 reports for January 2016 onwards were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

Audit commentary

The process for calculating and submitting electricity supplied information was examined by checking individual invoices for a typical sample of five NSPs to ensure the billed amount equalled the figure in the ICP level file which forms the basis of the aggregate file sent to the RM. The file is correct for the sample checked.

The chart below shows a comparison between submissions and electricity supplied information. At an aggregate level, submitted data is 0.29% higher than billed data for the two years ended January 2018 and 0.09% higher than billed data for the year ended January 2018.

Comparison between Submitted Volumes and Electricity Supplied



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 ten submissions and matching one month's volumes for ten ICPs to the source files.

The "ICP Missing" files were examined for all revisions for February 2017 to January 2018. An extreme case sample of the ten ICPs missing for the most months were reviewed.

Audit commentary

Mercury's HHR aggregates report contains submission information, not electricity supplied information as specified under clause 15.8. Although the reports Mercury 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 July 2017 (R0, R1, R3 and R7), August 2017 (R0, R1 and R3) and September 2017 (R0, R1 and R3). There were only small rounding differences between the volumes and aggregates, with differences less than ± 0.000% and ± 225 kWh across each submission). One month's volumes for ten ICPs were traced from the HHR aggregates submission to source information and found to match.

Mercury reviews the ICP missing files on business days five and ten, to identify any issues that require correction. Since January 2018 the review has included the last 14 months, previously only the most recent month was reviewed.

ICP Missing files were examined for all revisions for February 2017 to January 2018, and no issues with the HHR reporting processes were identified. An extreme case sample of the ten ICPs missing for the most months were reviewed, and found:

- Five ICPs were missing from some periods because of backdated switches or withdrawals.
- One ICP was missing from some months because of a backdated profile change. The ICP was disconnected soon after changing to HHM profile and was changed back to RPS.
- Zero consumption was submitted for one inactive ICP. The ICP was recorded as missing from the registry.
- Two unmetered ICPs were missing on the registry because Mercury is unable to update the submission flag to HHR for some ICPs following the part 10 implementation. Mercury has tried to update the registry with Jade's assistance.
- One ICP was missing from both HHR and NHH submissions, due to incorrect set up in SAP. The ICP was missing from some submissions for July 2017 until January 2018. The issue was found and corrected by Mercury as soon as the ICP missing review process was expanded to cover the previous 14 months.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 11.4 With: Clause 15.8 From: June 2017 To: April 2018	HHR aggregates file does not contain electricity supplied information. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Strong Breach risk rating: 1
Actions taken to resolve the issue	**Completion date**
Low	The issue relating to content of the aggregates file is an error in the code, Mercury is providing submission information as expected.

Preventative actions taken to ensure no further issues will occur	Completion date	Remedial action status
As identified by the auditor, this is an error in the EA code See above. MEEN would request the risk rating be removed due to this code error.	2020	Disputed
Actions taken to resolve the issue	**Completion date**	
EA needing to resolve the code error.	2020	

12. SUBMISSION COMPUTATION

12.1. Daylight saving adjustment (Clause 15.36)

Code reference

Clause 15.36

Code related audit information

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

Audit observation

Daylight savings processes for MEPs and agents were reviewed as part of their audits.

Daylight savings processes for generation occur automatically.

A diverse characteristics sample of six daylight savings adjustments were reviewed, covering changes to and from daylight savings, each agent, and generation consumption.

Audit commentary

Daylight savings processes for MEPs and agents were reviewed as part of their audits. Because AMS and EDMI's audits were completed more than seven months ago, I confirmed that there were no issues with HHR processes since their May 2017 audits.

The "trading period run on" technique is used for daylight saving adjustment. This was confirmed by checking data recorded for the end of daylight savings in April 2017 and beginning of daylight savings in September 2017. The correct number of trading periods were recorded for the sample of daylight savings adjustments reviewed.

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.

A sample of NHH ICPs were checked to make sure they are handled correctly, including 15 ICPs with standard, or shared unmetered load, 11 ICPs with distributed generation, and 10 vacant ICPs with consumption.

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

Audit commentary

No breaches had been recorded for late provision of submission information.

Data is reviewed prior to submission as discussed in **section 12.3**.

NHH

Mercury prepares reconciliation submissions using reconciliation consumption generated by SAP. A sample of NHH ICPs were checked to make sure they are handled correctly, including vacant ICPs with consumption, disconnected ICPs with consumption, and ICPs with standard or shared unmetered load:

- an extreme case sample of the ten ICPs with the most vacant consumption were checked and found to be correctly reported
- all disconnected ICPs with consumption over 50 kWh while disconnected were checked; consumption during the disconnected period was reported
- a typical sample of ten ICPs with distributed generation were checked and found to be correctly reported
- a sample of 10 ICPs with unmetered volumes were checked, including standard unmetered and shared unmetered; correct consumption was submitted.

Further information on calculation of historic estimate is recorded in **section 12.11**, the correction process is documented in **section 8.1**, and aggregation of the AV080 report was found to be compliant in **section 12.3**.

HHR

The AV090 and AV140 (half hour volumes and aggregates) submissions are discussed in **section 11.4** and **8.2**.

Generation

A sample of generation NSPs were checked to ensure that volumes were correctly recorded in the AV130 report in **section 12.6.**

Audit outcome

Compliant

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 process 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. The GR170 to AV080 files for nine months were compared, to confirm zeroing occurs.

Audit commentary

Prior to submission, data is checked using Mercury's submission checker and NZRM/ALLA file editor tools.

Mercury's ICP days, NHH volumes, HHR volumes, HHR aggregates and as billed data are imported into the submission checker. The submission checker is used to create graphs and tables to compare the data, including review of historic consumption patterns, differences between revisions, and consistency checks between the reports. The results are reviewed by the energy analysts and approved in writing by the Pricing Operations and Energy Services Manager. In some cases, volumes may be queried with other teams or customers prior to approval.

NZRM/ALLA file editor compares volume, ICP days, and billed submissions to the NZRM balancing area data, to ensure trading notifications are open. Corrections are processed by the NZRM/ALLA file editor, and I confirmed that a full audit trail is created as part of this process. The most common corrections are:

- there is no NHH or HHR data for an expected aggregation factor combination, and zero records are inserted
- removal of zero consumption data if there is no open contract for the aggregation factor combination.

GR170 and AV080 files for September to November 2016 (revision 14), March to May 2017 (revision 7) and August to October 2017 (revision 3) were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required.

Generation data is separately checked prior to submission. Generation data is matched to check meter data, any differences over ± 2% are checked with a generation engineer. The Energy Services team intends to add the NSP volumes submission to the submission checker in the future.

The aggregation of the submission files was checked, and found to be compliant:

- NHH volumes were examined by checking five NSPs with a small number of ICPs
- one month's volumes for ten ICPs were traced from the HHR aggregates submission to source information
- ICP days were examined by checking ten NSPs with a small number of ICPs
- Electricity supplied information was examined by checking individual invoices for a typical sample of five NSPs to ensure the billed amount equalled the figure in the ICP level file which forms the basis of the aggregate file sent to the RM
- NSP volumes were examined by checking one day of volumes for five NSPs against SAP.

I checked the process for NHH to HHR upgrades, and HHR to NHH downgrades, to ensure all consumption information was accounted for. I walked through five downgrades and four upgrades to confirm the process.

- for upgrades, the process is to end the NHH meter the day before and consider the ICP HHR all day, with the trading periods prior to the meter change populated with zeros
- for downgrades the process is to end the HHR meter on the day of the change and begin the NHH meter from the installation read the following day.

This process ensures all consumption is accounted for.

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 on the registry and registry list were reviewed.

Audit commentary

Mercury is not responsible for any GIPs; compliance was not assessed.

Audit outcome

Compliant

12.5. Provision of NSP submission information (Clause 15.10)

Code reference

Clause 15.10

Code related audit information

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

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

Audit observation

The registry list and NSP table were reviewed.

Audit commentary

Mercury is not a local or embedded network owner; compliance was not assessed.

Audit outcome

Not applicable

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

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

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

Audit observation

The process to create AV130 (NSP volume information) was reviewed.

Data for a sample of five NSPs was traced from the meter data received through to the AV130 submission files.

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

Audit commentary

Mercury creates AV130 submissions for grid connected generation. No breaches had been recorded for late provision of submission information.

Data for a sample of five NSPs was traced from the meter data received through to the AV130 submission files; all values matched.

Revision submissions are not provided unless data has changed. Mercury confirmed that there had been no changes since the data was originally submitted.

Audit outcome

Compliant

12.7. Accuracy of submission information (Clause 15.12)

Code reference

Clause 15.12

Code related audit information

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

Audit observation

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

Audit commentary

Review of alleged breaches confirmed that no reconciliation submissions were made late.

Corrections are discussed in **section 8.1** and **8.2**. A small number of accuracy issues occurred because corrections had not been processed correctly.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.7 With: Clause 15.12 From: 01-Jun-18 To: 12-Apr-18	One correction for a bridged meter and three corrections for defective meters were not processed correctly due to a calculation errors. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate; the issues were caused by the user choosing an incorrect start read and appears to be a training issue. A template is used to calculate the corrections, and the estimated volume was added to an earlier reading instead of the meter removal reading. The impact is assessed to be low, the total under reported is estimated to be 573 kWh.

Actions taken to resolve the issue	Completion date	Remedial action status
Related to 8.1 This was the result of operator error. Further training has been provided to ensure this does not reoccur. The customers bill has not been corrected due to the adverse customer experience and limited amount of undercharging that MEEN would realise from performing this exercise. There is negligible materiality attached to this issue.	April 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Same as 8.1, ongoing coaching as required.	Ongoing	

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

Code reference

Clause 4 Schedule 15.2

Code related audit information

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

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

Three AV080 14 month revisions were reviewed to identify any forward estimate still existing. All NSPs with forward estimate remaining on any of the revisions were checked to determine the reasons for the forward estimate.

Audit commentary

SAP has an automated permanent estimate process which runs each night. If a read is older than six months and has been billed, SAP will change its type to a permanent estimate. Once billed in SAP, reads are locked and cannot be modified unless the invoice is reversed.

Review of the 14 month revisions for September 2016 to November 2016 showed that not all estimated meter readings had been replaced with validated meter readings. For the September 2016 14 month revision, 488 kWh of forward estimate remained for one NSP. All consumption related to ICP 1001271908UNCCC, which switched in on 07/11/2017 effective from 06/04/2016. The backdated switch was to resolve a cross billing issue, where the wrong ICP had been switched in.

This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 4 of Schedule 15.2 From: 01-Sep-16 To: 30-Sep-16	Some estimates were not replaced by revision 14. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated strong, the process to create permanent estimate is automated and the exception occurred due to a significantly backdated switch. Total forward estimate found for the three months reviewed was 488 kWh for September 2016.

Actions taken to resolve the issue	Completion date	Remedial action status
Exceptional circumstances due to cross billing issue. We have a report in place to capture any backdated switches more than 6 months. One ICP in 14 months.	April 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As indicated, low level of occurrence with strong controls. No further action to be taken.	April 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

Aggregation and content of reconciliation submissions was reviewed, and the registry list as at 21 February 2018 was reviewed.

Audit commentary

Compliance with this clause was assessed:

- all 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 is compliant.

Audit outcome

Compliant

12.10. Historical estimates and forward estimates (Clause 3 Schedule 15.3)

Code reference

Clause 3 Schedule 15.3

Code related audit information

For each ICP that has a non-half hour metering installation, volume information derived from validated meter readings, estimated readings, or permanent estimates must be allocated to consumption periods using the following techniques to create historical estimates and forward estimates. (clause 3(1))

Each estimate that is a forward estimate or a historical estimate must clearly be identified as such. (clause 3(2))

If validated meter readings are not available for the purpose of clauses 4 and 5, permanent estimates may be used in place of validated meter readings. (clause 3(3))

Audit observation

Nine 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

I reviewed nine 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

Mercury 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. The table below shows that all scenarios tested are compliant.

Audit commentary

Mercury provided examples of historic estimate calculations which were reviewed. I found that correct shape files had been applied.

The process for managing shape files was examined. There is an automated process where the RM web server is polled for new files, which are moved to the system production files. I viewed the data capture process and noted that files had been processed as expected, and the most recent files were available.

Following the 2017 audit a correction was made to the historic estimate process for ICPs which have switched to another retailer and then back to Mercury. Previously, the calculation didn't include the switch in date for the second and subsequent switch in date. All scenarios were found to be calculating correctly.

Test	Scenario	Test expectation	Result
a	ICP becomes Active part way through a month	Consumption is only calculated for the Active portion of the month.	Compliant
b	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
c	ICP become Inactive then Active again within a month.	Consumption is only calculated for the Active portion of the month.	Compliant
d	ICP switches in part way through a month on an estimated switch reading	Consumption is calculated to include the 1st day of responsibility.	Compliant
e	ICP switches out part way through a month on an estimated switch reading	Consumption is calculated to include the last day of responsibility.	Compliant
f	ICP switches out then back in within a month	Consumption is calculated for each day of responsibility.	Compliant
g	Continuous ICP with a read during the month	Consumption is calculated assuming the readings are valid until the end of the day.	Compliant
h	Continuous ICP without a read during the month	Consumption is calculated assuming the readings are valid until the end of the day.	Compliant
i	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant
j	Unmetered load for a full month	Consumption is calculating based on daily unmetered kWh for full month.	Compliant
k	Unmetered load for a part month	Consumption is calculating based on daily unmetered kWh for active days of the month.	Compliant
l	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Compliant

Test	Scenario	Test expectation	Result
m	ICP with a customer read during the month	Customer reads are not used to calculate historic estimate unless appropriately validated.	Compliant
n	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate.	Has not occurred
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly.	Compliant

Audit outcome

Compliant

12.12. Forward estimate process (Clause 6 Schedule 15.3)

Code reference

Clause 6 Schedule 15.3

Code related audit information

Forward estimates may be used only in respect of any period for which an historical estimate cannot be calculated.

The methodology used for calculating a forward estimate may be determined by the reconciliation participant, only if it ensures that the accuracy is within the percentage of error specified by the Authority.

Audit observation

The process to create forward estimates was reviewed.

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

Audit commentary

Mercury's forward estimates are based on either:

- historic readings
- historic daily average consumption based on price plan and billing group.

Mercury's forward estimate process also includes a "factoring" process, which involves the use of the average of the previous two-year's profile shape. This ensures that submission information is not understated or overstated during "shoulder" months.

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 target was not met for all revisions. Non-compliance is recorded below.

Quantity of balancing areas with differences over 15% and 100,000 kWh

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total
Oct 2016	1	1	1	1	244
Nov 2016	3	2	2	2	246
Mar 2017	1	1	1	-	257
Apr 2017	0	0	0	-	258
May 2017	1	1	1	-	260
Jun 2017	1	2	2	-	260
Jul 2017	0	0	-	-	267
Aug 2017	0	1	-	-	269
Sep 2017	0	2	-	-	272
Oct 2017	1	1	-	-	268

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Oct 2016	0.91%	0.90%	0.90%	0.88%
Nov 2016	0.67%	0.67%	0.50%	0.51%
Mar 2017	-1.25%	-0.97%	-0.99%	-
Apr 2017	-1.26%	-2.05%	-2.29%	-
May 2017	1.00%	-0.27%	-0.59%	-
Jun 2017	3.19%	1.45%	1.46%	-
Jul 2017	0.74%	-0.58%	-	-

Month	Revision 1	Revision 3	Revision 7	Revision 14
Aug 2017	4.15%	2.80%	-	-
Sep 2017	3.22%	1.95%	-	-
Oct 2017	4.93%	3.34%	-	-

I checked all differences over the threshold. The differences related to:

- commercial sites switching in and forward estimates being higher or lower than the actual reads received
- commercial sites where forward estimate had been too high or low, because insufficient read history was available for estimation
- profile shapes provided by the NZRM being different to the profiles used to calculate forward estimate for the initial allocation.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.12 With: Clause 6 Schedule 15.3 From: Oct 2016, Nov 2016, Mar 2017, May 2017, Jun 2017, Aug 2017, Sep 2017 and Oct 2017	The accuracy threshold was not met for all months and revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to ensure data is within the accuracy threshold most of the time. Initial data is replaced with revised data and washed up.

Actions taken to resolve the issue	Completion date	Remedial action status
MEEN had identified this issue prior to the audit and based upon analysis initiated the No reads project will reduce occurrence of this issue. This project is in our pipeline of improvements and anticipate it being completed within 6 months time.	December 2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
As above	December 2018	

12.13. Compulsory meter reading after profile change (Clause 7 Schedule 15.3)

Code reference

Clause 7 Schedule 15.3

Code related audit information

If the reconciliation participant changes the profile associated with a meter, it must, when determining the volume information for that meter and its respective ICP, use a validated meter reading or permanent estimate on the day on which the profile change is to take effect.

The reconciliation participant must use the volume information from that validated meter reading or permanent estimate in calculating the relevant historical estimates of each profile for that meter.

Audit observation

The event detail report for 1 June 2017 to 26 February 2018 was reviewed and identified 386 ICPs which had a change of profile, including reversal and replacement of previous profiles.

A diverse sample of ten ICPs with profile changes, including five upgrades to HHR and five downgrades to NHH were reviewed to confirm that there was an actual reading on the day of the profile change.

Audit commentary

All profile changes are conducted using an actual meter reading or a permanent estimate at 11.59pm on the last day with the old profile. Mercury provided an email from the Authority which confirmed that this was compliant, as long as the new profile came into effect at 0.00am the following day.

I reviewed a sample of nine profile changes and confirmed eight had an actual reading the day before the profile change and the new profile came into effect at 0.00am the following day. One profile change was in error; it was corrected from HHM to RPS by the new retailer upon switching, but the switch was later withdrawn and the ICP returned to Mercury with RPS profile and no actual read on the day before the profile change. The profile was corrected during the audit, and the period with an incorrect profile is recorded as non-compliance in **section 2.1**.

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

The process to ensure that AV080 submissions are accurate was discussed in **section 12.2**.

Processes to ensure that information used to aggregate the reconciliation reports is consistent with the registry were reviewed in **section 2.1**.

Zeroing in the AV080 submission is discussed in **section 12.3** and was found to be compliant.

Audit commentary

Submission information is provided to the reconciliation manager in the appropriate format and is aggregated to the following level:

- NSP code
- reconciliation type
- profile
- loss category code
- flow direction
- dedicated NSP
- 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

Review of nine AV080 non half hour volumes reports confirmed that submission data is rounded to zero decimal places.

Review of nine AV090 half hour volumes reports confirmed that submission data is rounded to zero decimal places.

Review of nine 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 nine months of AV080 reports to confirm that historic estimate requirements were met.

Audit commentary

The quantity of historical estimates is contained in the submission file and is not a separate report. The proportion of HE in the revision files was checked for nine separate months, and the table below shows that compliance has not been achieved in all instances.

The overall percentages of historic estimate are high.

Quantity of NSPs where revision targets were met.

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Sep 2016	-	-	327	328
Oct 2016	-	-	336	336
Nov 2016	-	-	337	337
Mar 2017	-	349	-	349
April 2017	-	350	-	350
May 2017	-	350	-	351
Aug 2017	357	-	-	362
Sep 2017	356	-	-	363
Oct 2017	361	-	-	364

The table below shows that the percentage HE at a summary level is below the required targets. For the September 2016 14 month revision, exceptional circumstances prevented readings from being attained.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Sep 2016	-	-	99.9998%
Oct 2016	-	-	100.0000%
Nov 2016	-	-	100.0000%
Mar 2017	-	99.9978%	-
April 2017	-	99.9974%	-
May 2017	-	99.9987%	-
Aug 2017	98.4134%	-	-
Sep 2017	98.6691%	-	-

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Oct 2017	98.6530%	-	-

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 13.3 With: Clause 10 of Schedule 15.3 From: March 2017 (r7), May 2017 (r7), August 2017 (r3), September 2017 (r3) and October 2017 (r3)	Historic estimate thresholds were not met for some revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate because in most cases the thresholds were met, and processes are in place to make estimated readings permanent. The audit risk rating is low, because Mercury were reasonably close to the target in all cases.

Actions taken to resolve the issue	Completion date	Remedial action status
Mercury has a strong control in place. One case was created due to exceptional circumstances (a cross billing situation which is very very rare at the GXP level) which was covered off with the Auditor. This needs to be removed from the report	April 2018	Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	
The code states that "The proportion of submission information per NSP that is comprised of historical estimates must (unless exceptional circumstances exist). MEEN explained to the auditor the exceptional circumstances of the issue.	N/A	

CONCLUSION

The audit found Mercury has addressed a number of issues identified in the previous audit, and has identified additional issues in relation to switching and registry management.

The audit found 34 non-compliance issues, three recommendations are made and no issues are raised. Ten of the non-compliance issues relate to switching (consistent with the 2017 audit), and nine relate to registry management and new connections (a reduction from ten in the 2017 audit). There is an overall reduction in the number of non-compliances (from 35 to 34) and significant reduction in recommendations (from 9 to 3) when compared to the previous audit.

I note that the Authority is undertaking an end to end operational review of the switching process, which may result in changes to the switching requirements for participants. Resolution of some non-compliances relating to switching is on hold pending the outcome of the EA's review.

The highest priority non-compliances relate to management of standard unmetered load over 6,000 kWh pa and distributed unmetered load, and some automated SAP processes which are leading to incorrect information being populated in SAP and on the registry.

The key unmetered load issues identified are:

- Mercury have switched in some historic telco unmetered load which is above the 6,000 kWh threshold. The load has not been verified as there is no database associated with it. Mercury are working to resolve this by either creating a database for the load, or ICPs to account for the items of load.
- Six of the nine DUML databases contain errors which affect submission, and one DUML ICP has a database with insufficient data for it to be audited.

The automated process issues identified are:

- the meter removal process is triggering incorrect backdates of disconnected ICPs to active in SAP and subsequently the registry
- the completing of incomplete tasks on disconnected ICPs is triggering incorrect backdates of disconnected ICPs to active in SAP and subsequently the registry
- one example of an incorrect backdate to reconnected with no activity on the account to indicate why the automated update had occurred
- the sending of an AW file triggering a bogus MEP nomination
- the transposing of register reads in the CS file for ICPs with two register meters.

These are detailed in the report. I note that Mercury upgraded the SAP platform in November 2017. There were no changes to process made as part of this platform upgrade. I recommend that the automated processes be tested to confirm that they are producing the expected results.

Improvements in other areas were observed, including:

- Correction of the historic estimate logic for a scenario that was previously calculated incorrectly. Submission review processes have improved and continue to be refined.
- I found most corrections to reconciliation data had been appropriately processed. A small number of corrections were not processed accurately, these errors appear to be due to training and human error.
- Read attainment processes have improved, and further improvements will be implemented in May 2018. The new process will generate emails, texts, and letters to customers whose ICPs have not received reads for three months or six months. The process to change ICPs between AMI and manual meter reading routes will also become more automated. These changes are expected to further improve meter read attainment.
- The area of MEP management and ANZSIC code management has improved during the audit period.

- Shared unmetered load continues to be managed well.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and contains a future risk rating score of 104, which results in an indicative audit frequency of three months. This is an increase from the previous audit's score of 77, largely due to higher risk ratings and weaker control ratings because some automated switching and registry management processes are not functioning as expected.

I have considered this result in conjunction with Mercury's responses. Taking into consideration that almost half (17) of the non-compliances have been cleared or corrective actions have been identified, and that resolution of some switching non-compliances is awaiting the outcome of the EA's review of the switching process, my recommendation for the next audit date is in seven months.

PARTICIPANT RESPONSE

Mercury has reviewed the Audit report and accepted a breach where it has been clearly demonstrated that MEEN is breaching an obligation through its own actions, and where the Authority is reviewing the code obligations.

Where the Authority is undertaking work on particular compliance objectives, these should not be considered as part of MEEN's risk rating.

Mercury is concerned with one auditor recommendation that we shouldn't switch and reconnect customers where the MEP has not certified the site. Mercury can see no benefit to the customer or the market in pursuing a technical compliance objective to the detriment of the customer and market and suggest the Authority review this as a matter of urgency. This obligation appears to be aimed at getting one industry participant to ensure a second industry participant is compliant with a process they are responsible for. The code should be reviewed to remove secondary obligations of this nature.

Mercury remains concerned at the lack of materiality in assessing risk. Mercury has received adverse compliance finding when an error rate of 1-2% was identified, and in an extreme case .009% resulted in an adverse finding. Traditional and best practice auditing requires assessment of non-compliances against transactions completed and appropriate risk ratings based on the outcome. Given this is not included in the EA audit regime it is likely to result in increased "costs of doing business" which are ultimately passed on to the customer. A review of the EA website indicates the large number of audits with increasingly shorter re-audit periods now occurring, which is contradictory to the regime which has not seen wholesale change recently.

Overall Mercury maintains in excess of 99% compliance across audited processes however retailers with smaller volumes of transactions receive a lower risk rating even though overall compliance may be at a reduced level.

Mercury looks forward at some stage in the future to the Authority reviewing the new Audit regime to ensure it is continuing to meet its statutory objectives specifically as it relates to efficiency and competitiveness.

As a significant number of breaches have been cleared or relate to work currently being undertaken by the Authority, we would request a 18-24 month re-audit period. This will allow sufficient time for MEEN to investigate the small number of automated processes not performing as expected, IT investigations to be completed, changes implemented and the Authority to consider the items currently in their work program. Mercury has action plans in place for areas of non-compliance however and audit carried out prior to these issues being rectified will only identify already known compliance issues and there provide no benefit to the Authority.