ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT

For

MERCURY NZ LIMITED
NZBN: 9429037705305

Prepared by: Steve Woods, Rebecca Elliot and Bernie Cross

Date audit commenced: 1 December 2021

Date audit report completed: 25 March 2022

Audit report due date: 28-Mar-22

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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 7.2.

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 identified 39 non-compliances and 10 recommendations are made. Additional emphasis was placed on the accuracy and controls with regard to the management of AMI data and processes, which has resulted in a small number of additional non-compliances.

Data collection and reconciliation

The main data collection and reconciliation related issues are as follows:

- there are still 1,469 HHR settled ICPs where the interval data from ARC Innovations is inaccurate, this has increased from 1,463 during the previous audit; two of these ICPs have compensation factors of 100, meaning the smallest possible increment per interval is 10 kWh,
- five historic estimate scenarios were not compliant, mainly due to the incorrect application of meter readings causing incorrect apportionment of consumption information,
- all estimated meter readings and customer meter readings are changed to permanent estimates at the 6-month point, which does not achieve compliance with the Code requirement to use reasonable endeavours to get meter readings for at least 12 months prior to changing estimates to permanent estimates; this can lead to incorrect apportionment of consumption information,
- submission errors were found with six of the 12 distributed unmetered load databases; Mercury is making sound progress with remedial actions with all of these, including the telecommunication equipment database which has been audited and is due to be audited again in April 2022, and
- at least 25 ICPs have distributed generation but submission is not occurring for the generation kWh; in most cases, this is due to the appropriate metering not yet being in place.

Switching and registry management

This audit found further automation of processes which have caused the level of non-compliance to increase. Specifically in relation to the automation of the new connections process. A material change should have been undertaken before this went live. It is believed that the bugs in this area have been resolved and performance is expected to return to previous levels. There has also been a change of staff in the new connections area which further impacted performance. The team is back to full strength, and this will also assist with compliance being improved.

The management of ICPs for reconnections and disconnections is consistent and compliance in this area is good overall. I have recommended that ICPs where the meters have been returned to the MEP and are then moved to the "inactive - meter disconnected" be reviewed. These are potentially ICPs that need to be decommissioned but Mercury moves these to this status and waits for the distributor to contact them if a decommissioning is completed. I note that the volume of ICPs in this status has grown from 25 in 2017 to 1,743 ICPs.

The switching area processes are robust, but I note that the automation being used in this area continues to cause issues. It appears that logic is being tweaked but the process to check outcomes needs improvement.

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 86, which results in an indicative audit frequency of three months.

I have considered this result in conjunction with Mercury's responses, and I recommend the next audit is conducted in 14 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
Material change	1.11	16A.11	Material change audit not conducted for the automation of the new connections process.	Weak	Low	3	Identified
Relevant information	2.1	10.6,11.2 & 15.2	Some registry discrepancies resulting in submission inaccuracies. Some ICPs with distributed generation not quantified. Consumption on inactive ICPs not always corrected as soon as practicable. Arc provides interval data to one decimal place, which is not considered to be sufficiently accurate. Generation interval data for Maraetai increments in units of 10 kWh with zero decimal places.	Moderate	Medium	4	Identified
Audit trails	2.4	21 Schedule 15.2	Audit trail not kept where SAP estimates and customer reads are made permanent estimates	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Electrical Connection of Point of Connection	2.11	10.33A	Two active ICPs with no metering installed and no unmetered load. Six metered new connections had late meter certification of a sample of 20 ICPs checked. Potential population of 100 ICPs. Nine reconnections of metered ICPs of a sample of 20 ICPs had late meter certification. Potential population of 148 ICPs. Three ICPs reconnected and requested for the incorrect gain date from the losing trader.	Moderate	Low	2	Identified
Changes to registry information	3.3	10 of schedule 11.1	707 updates to active status for reconnections were made more than five business days after the event date. 72 updates to "inactive - new connection in progress" status were made after the initial electrical connection date. 320 updates to inactive statuses apart from "inactive - new connection in progress" were made more than five business days after the event date. 41,581 late trader updates. 388 ANZSIC code updates were not completed within 20 business days of commencement of trading.	Moderate	Low	2	Identified
Trader responsibility for an ICP	3.4	11.18	A small number of invalid MEP nominations were sent.	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Provision of information to the registry manager	3.5	9 of Schedule 11.1	1,285 late updates for new connections (65.06% updated within five business days). Three ICPs of a sample of 27 ICPs with potential late meter certification had been made "active" for the incorrect date. Four (0007201529RN6A4, 1002137904UN6F8, 1002137734LCD1F and 0007202684RN003) of a sample of 30 new connections with date discrepancies made "active" for the incorrect date. ICP 0000048279WE539 switched out at the "new connection in progress" status resulting in the consumption period with Mercury not being reconciled.	Moderate	Low	2	Identified
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	1,398 ICPs with T994 ANZSIC codes. 17 of a sample of 21 ICPs (from a possible 125) meter category code 2/3 were incorrectly recorded as residential. Five of a sample for 80 active ICPs (6% error rate) with the incorrect ANZSIC code.	Moderate	Low	2	Identified
Changes to unmetered load	3.7	9(1)(f) of Schedule 11.1	Two ICPs with the incorrect daily kWh figure resulting in a very minor submission inaccuracy.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Management of "active" status	3.8	17 Schedule 11.1	Two ICPs of a sample of ten ICPs with no MEP nomination or metering recorded on the registry at the incorrect status. Three ICPs of a sample of 27 ICPs with potential late meter certification had been made "active" for the incorrect date. Four (0007201529RN6A4, 1002137904UN6F8, 1002137734LCD1F and 0007202684RN003) of a sample of 30 new connections with date discrepancies made "active" for the incorrect date. Eight of a sample of 40 ICPs (20 reconnections and 20 reconnected with expired meter certification) updates were incorrectly updated to "active".	Moderate	Low	2	Identified
Management of "inactive" status	3.9	19 Schedule 11.1	Some ICPs with incorrect inactive statuses not identified. Three ICPs no longer required at the "new connection in progress status". ICP 0000048279WE539 switched out at the "new connection in progress" status resulting in the consumption period with Mercury not being reconciled.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Losing trader response to switch request and event dates - standard switch	4.2	3 & 4 of schedule 11.3	Less than 50% of ANs had proposed event dates within five business days of NT receipt. Four ANs had proposed event dates more than ten business days after NT receipt. Four of a sample of 17 AN files checked contained incorrect response codes of AA.	Moderate	Low	2	Identified
Losing trader must provide final information - standard switch	4.3	5 of schedule 11.3	One CS breach. One E2 breach. Three WR breaches. Average daily consumption calculation will be incorrect if the last read is more than six months prior to the end date. One ICP with an average daily consumption figure greater than 200 kWh calculated incorrectly. 31 CS files sent with the incorrect last read date due to human error. Two CS files were sent with a last read date after the period of supply. One ICP was sent with the incorrect last read date	Moderate	Low	2	Identified
Retailers must use same reading - standard switch	4.4	(1) and 6A Schedule 11.3	Four of the 12 ICPs sampled were not supported by two actual reads. Three RR breaches.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Losing trader provides information - switch move	4.8	10 of schedule 11.3	Four of a sample of 19 AN files checked contained incorrect response codes of AA. 22 ANs has a proposed event date before the gaining trader's requested date. One AN file had proposed event dates more than ten business days after NT receipt. 19 WR breaches. Six E2 breaches. 37 T2 breaches.	Moderate	Low	2	Identified
Losing trader must provide final information - switch move	4.10	11 of schedule 11.3	Average daily consumption calculation will be incorrect if the last read is more than six months prior to the end date. Two ICPs with an average daily consumption figure greater than 200kWh per day calculated incorrectly. Eight files sent with an incorrect last read date and read type of "E". ICP 1000596369PCDBA was sent with the incorrect last read. Ten files sampled of a possible 26 CS files were sent with a last read labelled incorrectly as an actual. All five files sampled of a possible 35 CS files were sent with a last read date after the period of supply.	Moderate	Low	2	Identified
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	One of the ten RRs sampled was not supported by two actual reads. 22 RR breaches.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Withdrawal of switch requests	4.15	17 & 18 of schedule 11.3	Five sent with the incorrect withdrawal code of a sample of 21 rejected NWs. 140 NA breaches. 26 SR breaches.	Strong	Low	1	Identified
Metering information	4.16	21 of schedule 11.3	Eight files sent with an incorrect last read date and read type of "E". Ten files sampled of a possible 26 CS files were sent with a last read labelled incorrectly as an actual. One switch move switch sent with incorrect last read.	Moderate	Low	2	Identified
Distributed unmetered load	5.4	11 Schedule 15.3, Clause 15.37B	Submission errors found in six databases. The specific findings are detailed in the DUML database audit reports.	Moderate	High	6	Identified
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 five ICPs. Some ICPs with distributed generation not quantified.	Moderate	Low	2	Identified
Responsibility for metering at GIP	6.2	10.26 (6), (7) and (8)	13 meter certification expiry dates were updated late.	Weak	Low	3	Identified
Collection of information	6.5	2 Schedule 15.2	ICP 0000033002TC7DD was not interrogated within the maximum interrogation cycle	Strong	Low	1	Identified
Derivation of meter readings	6.6	3(2) Schedule 15.2	Customer reads are not being validated against another set of validated meter reads before being considered permanent estimates after six months.	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
NHH meter reading application	6.7	6 Schedule 15.2	Not all reconnection reads are being applied from 0000hrs on the day of a registry status change to "active".	Strong	Low	1	Investigating
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	The best endeavours requirement was not met for 152 ICPs not read during the period of supply.	Strong	Low	1	Identified
Correction of HHR metering information	8.2	19(2) Schedule 15.2	HHM interval volumes not aligned with accumulating register reads.	Moderate	Low	2	Identified
Identification of readings	9.1	3(3) Schedule 15.2	No visible audit trail present for the change in treatment of estimated and customer reads in the calculation of historic estimate (HE) volumes within SAS or SAP.	Moderate	Low	2	Identified
Meter data used to derive volume information	9.3	3(5) of schedule 15.2	Raw meter data is rounded upon receipt and not when volume information is created.	None	Low	5	Identified
Half hour estimates	9.4	15 Schedule 15.2	HHR volumes are estimated as zero in order to create a placeholder in the AV-090 and AV-140 files where data not yet provided by the HHR data collectors in time for submission.	Moderate	Medium	4	Identified
NHH metering information data validation	9.5	16 Schedule 15.2	Not all inactive consumption is being identified and investigated.	Strong	Low	1	Identified
Electronic meter readings and estimated readings	9.6	17 Schedule 15.2	Clock synchronisation and event reports not reviewed for all MEPs. Voltage on the load side of a disconnected meter event is not sent by all AMI MEPs,	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Creation of submission information	12.2	15.4	At least 25 ICPs have solar generation but submission is not occurring as mentioned in Section 2.1.	Moderate	Low	2	Identified
Accuracy of submission information	12.7	15.12	Inaccurate submission as follows: • precision of grid generation volumes for Maraetai generation station is insufficient as volumes are reported in increments of 10 kWh, • non solar distributed generation submitted using PV1 profile code, • two ICPs with the incorrect daily kWh value, • 15 ICPs at the incorrect statuses causing submission inaccuracies, • some switch meter reads incorrectly labelled and one incorrect switch read	Moderate	Low	2	Identified
Permanence of meter readings for reconciliation	12.8	4 Schedule 15.2	All estimated reads treated as permanent estimates after six months, but the Code requires Mercury to use reasonable endeavours to get meter readings for at least 12 months. Some estimates were not replaced by revision 14.	Moderate	Medium	4	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Reconciliation participants to prepare information	12.9	2 Schedule 15.3	ICP 1002125124LCA15 not submitted as HHR where the metering installation category is 3 and the billing capacity is 500 kVA. Some unmetered load calculations were incorrect. ICP 0005011390CNB4E incorrect multiplier applied to HHR volumes by EDMI from December 2017 to July 2021.	Moderate	Low	2	Identified
Historic estimate process	12.11	4 and 5 Schedule 15.3	Historic estimate calculations incorrect for 5 scenarios.	Moderate	Low	2	Identified
Forward estimate process	12.12	6 Schedule 15.3	The accuracy threshold was not met for all months and revisions.	Moderate	Medium	4	Identified
Historical estimate reporting to RM	13.3	10 of Schedule 15.3	Historic estimate thresholds were not met for some revisions.	Strong	Low	1	Identified
					Future Risk Rating	**86**	

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

RECOMMENDATIONS

Subject	Section	Recommendation
Distributed Generation	2.1	Liaise with Orion and the customer to confirm what generation is present for ICP 0007130338RNA72.
Changes to registry information	3.3	Review the process to manage ICPs where the meter has been removed to ensure that any ICPs to be decommissioned are identified and advised to the distributor.
Provision of information	3.5	Put a check in place that does not allow a switch out to for ICPs at the "inactive - new connection in progress" status.
Management of "inactive" status	3.9	Remind the new connections team that the "new connection in progress" status must be reversed if an ICP is no longer required.
Read Requests	4.4	Remind teams who raise the RR requests that these must be supported with two actual reads.

Meter reading attainment	6.6	Reinstate separate monthly non-critical meter condition report (broken seals, different meter number, suspect tamper) between MRS and Mercury's Premise and Metering team to enable timely investigation and resolution of issues identified.
Half hour estimates	9.4	Extend the use of the grid generation audit trail template for corrections to all C&I interval data corrections.
Identification and escalation of missing AMI interval data to MEPs	9.6	Develop and implement reporting of missing / estimated interval data used in submission of the HHM profile and the process to escalate these instances to the relevant AMI MEP for resolution.
Review precision of all grid generation bus metering points.	12.7	Review number of decimal places retrieved from all bus level grid generation metering points to ensure AV130 submission volumes are submitted to an accuracy of two decimal places.
Forward estimate process	12.12	Review the use of seasonal adjustment daily shape values to apply a seasonal factor to forward estimate volumes.

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 the following exemptions:

- **Exemption 309**
  Mercury is exempted from complying with the obligation in clause 10.14(2)(b) of the Electricity Industry Participation Code 2010 ("Code") to not treat load expected to exceed 9,000 kWh in any 12-month rolling period as unmetered load. This exemption applies only to installation control points ("ICPs") 0000161894CK3EF, 0000161895CKFAA, 0001393839UN86B, 0000161897CKF2F, 0000190118TR62B, 0000161899CKCB4 and 0000161900CK406.

  The exemption expires on the earlier of 17 June 2028, when Mercury is no longer recorded as the trader, when the ICPs are metered, when the ICPs are decommissioned, or when the load for any of the ICPs exceeds 9,000 kWh per annum.

- **Exemption 307**
  Mercury is exempted from complying with the obligation in clause 10.24(c) of the Electricity Industry Participation Code 2010 ("Code") to not to use subtraction to determine submission information. This exemption applies only to ICP 0003133903AA777.

  The exemption expires on the earlier of 1 December 2030, the date when Mercury is no longer recorded in the registry as being the trader for ICP 0003133903AA777, the date when Accucal is no longer recorded on the registry as the MEP, the date on which the meter programming, metering or distribution configuration is changed, the date on which any other consumer is connected to the same 11kV distribution substation as ICP 0003133903AA777, and the date on which any other consumer is connected to the same 11kV distribution substation as ICP 0003133903AA777.

- **Exemption 281**
  Mercury is exempted from the obligation to arrange a distributor audit under clause 11.10 of the Electricity Industry Participation Code 2010 ("Code"). This exemption applies only in respect of the grid exit point (GXP) at Atiamuri (ATI2201 MRPL GN).

  This exemption expires on 16 August 2029.

- **Exemption 233**
  Mercury is exempted from complying with the obligation in clause 8(g) of Schedule 15.3 of the Electricity Industry Participation Code 2010 ("Code") to provide non-half-hour ("NHH") submission information instead of half-hour ("HHR") 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. This is available on request

1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Rebecca Elliot	Veritek Limited	Lead Auditor
Steve Woods	Veritek Limited	Supporting Auditor
Tara Gannon	Veritek Limited	Supporting Auditor
Bernie Cross	Veritek Limited	Supporting Auditor

Mercury personnel assisting in this audit were:

Name	Title
Ranjesh Kumar	Commercial Operations and Reconciliation Manager
Kayla McJarrow	Compliance, Risk and Financial Reconciliation Analyst
Filisha Ah-Sheck	Risk Control Co-ordinator
Rebecca Prosser	Metering & Network Team Leader
Mokram Al-Zibaree	Meter Reading Specialist
Jacqueline Paul	Meter Reading Specialist
Ishmita Bedi	Energy Analyst
Evelise Favari	Energy Analyst
Leon Law	Revenue and Registry Coordinator
Urvashi Vats	Customer Transition Manager
Tapu Ropati	Switch Analyst
Aidana Ibragimova	Energy Analyst
Jerome Tusani	Revenue and Registry Coordinator

Name	Title
Tricia Tautali-Ah-Sei	Credit and Collections Specialist
Sarah Munro	Brand Manager/ Customer Experience Lead
Trina Woodall	Executive Assistant/Operational excellence
Evelise Campozana de Favari	Energy Analyst

Other personnel assisting in this audit were:

Name	Title	Company
Julie Feasey	Senior C and I Data Services Specialist	Vector Metering
Nick Appleby	Solution Support Specialist	EDMI NZ Limited
Peter MacKenzie	General Manager Operations	Arthur D Riley & Co Ltd (MRS)
Sunny Feng	Data Analyst	EMS

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.
- Councils provide HHR and NHH DUML data.
- MRS (AD Reilly) provide NHH data.
- Intellihub provides estimated AMI data

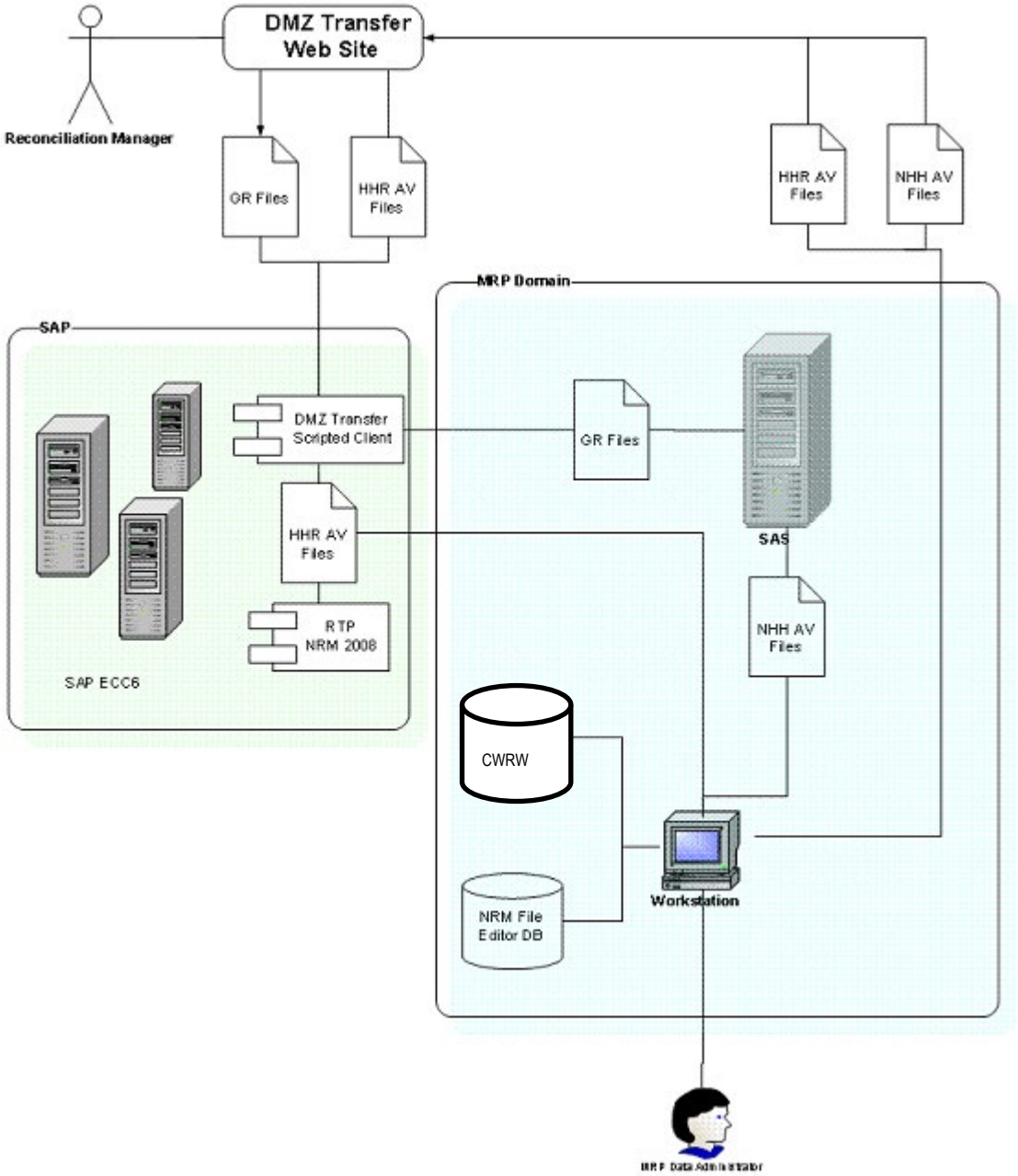
Where the agent audit report was more than seven months old on the audit due date, I confirmed with the agent that that there had been no changes to systems or processes which could affect Mercury's compliance.

AMS, IntelliHUB, and Arc 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

The Electricity Authority confirmed that there have been two alleged breaches relevant to the scope of this audit for Mercury Energy.

Breach ref	Clause breached	Status	Comment
2104MERC1	Part 15 clause 15.2(1)(a)	Closed minor breach	One ICP was missed on the AV090 and AV140 file for the February 2020 revision 14 resulting in under submission of 64,497.92 kWh. Revised files were provided and included in the published allocation results.
2108MERC1	Part 15 clause 15.2(1)	Fact finding	Mercury was advised by EDMI that a 160x multiplier had not been applied to the import and export streams since 19/12/17 when a new meter was installed. Mercury's submission data was incorrect from December 2017 to May 2021.

1.7. ICP Data

All active ICPs are summarised by metering category in the table below. 1,043 active ICPs have a metering category of 9 or blank. 989 of these have unmetered load indicated, and the remaining 54 were checked:

- 32 had MEP nominations made and accepted and were awaiting meter details on the registry,
- five were timing differences and the metering details were updated, or the status was updated to inactive or decommissioned prior to the audit, and
- 17 did not have MEP nominations issued, the findings of these are detailed in **section 2.9**.

Metering Category	**Nov 2021**	**Nov 2020**	**2020**	**2019**	**2018**	**2017**
1	304,599	314,092	326,699	348131	345,836	338,896
2	3,023	3,074	3,050	3,299	3,100	3,288
3	809	607	574	556	550	622
4	307	234	207	181	160	159
5	23	23	22	19	19	16
9	467	461	461	472	469	107
Blank	576	616	664	638	590	304

Status	Number of ICPs (Nov 2021)	Number of ICPs (Nov 2020)	Number of ICPs (2020)	Number of ICPs (2019)	Number of ICPs (2018)	Number of ICPs (2017)
Active (2,0)	309,804	319,107	331,677	350,724	343,392	326,093
Inactive – new connection in progress (1,12)	564	4	2	3	2	2
Inactive – electrically disconnected vacant property (1,4)	4,818	4,699	4,275	3,998	4,201	3,575
Inactive - reconciled elsewhere (1,5)	1	2	2	1	5	5
Inactive – electrically disconnected ready for decommissioning (1,6)	238	180	167	313	511	714
Inactive – electrically disconnected remotely by AMI meter (1,7)	26	28	19	24	13	5
Inactive – electrically disconnected at pole fuse (1,8)	25	18	15	14	10	1
Inactive – electrically disconnected due to meter disconnected (1,9)	1,743	1,695	1,662	1,373	226	25
Inactive – electrically disconnected at meter box fuse (1,10)	1	2	1	1	-	-
Inactive – electrically disconnected at meter box switch (1,11)	-	1	1	4	-	-
Decommissioned (3)	27,002	25,825	24,865	22,751	21,852	20,269

1.8. Authorisation Received

Mercury provided a letter of authorisation to collect information from other parties.

1.9. Scope of Audit

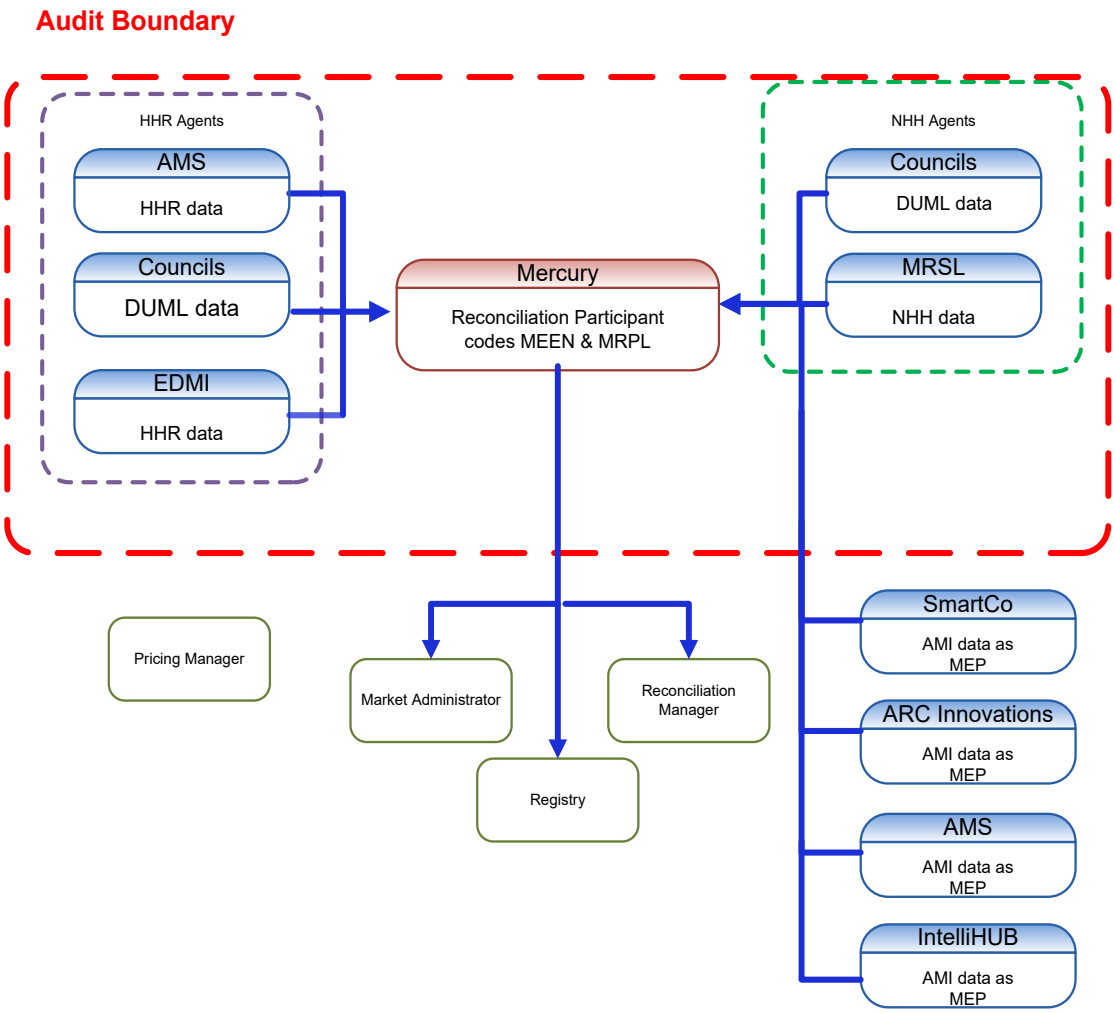
This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of Mercury, to support their application for renewal of certification in accordance with clauses 5 and 7 of schedule 15.1. The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits V7.2.

The audit was carried out at Mercury's premises in Auckland remotely via teams from 14-17 February 2022.

The audit analysis was conducted on:

- a registry list and event detail report for 1 January 2021 to 19 November 2021
- a registry list and meter event detail report for 19 November 2021, and
- an audit compliance report for 1 January 2021 to 19 November 2021.

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	MRS – NHH AMS – HHR EDMI – HHR
(c)(iii) - Creation and management of HHR and NHH volume information	AMS – HHR EDMI – HHR Various Councils – DUML data

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks
	Intellihub – AMI estimates
(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, AMS, Smartco and IntelliHUB conduct AMI data collection as MEPs and not as agents to reconciliation participants.

Mercury receives distributed unmetered load (DUML) data from 12 distributed unmetered load customers, who are considered agents under clause 15.34. Veritek has audited or has the next audit scheduled for these parties 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

The previous audit report conducted in March 2021 by Rebecca Elliot (lead auditor) of Veritek Limited was reviewed. The summary tables below show that some of the issues have been resolved and some are still existing. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Material change	1.11	16A.11	Material change audit not conducted for deployment of centralised AMI data repository.	Still existing
Relevant information	2.1	10.6,11.2 & 15.2	Some registry discrepancies. 2 switch event meter readings not corrected from the 2020 audit. Some ICPs with distributed generation not quantified. IntelliHUB does not provide updated actual data to replace estimates if the actual data is obtained more than 15 days after the event date. 1 ICP with the incorrect status of 1,5. Arc provides interval data to one decimal place, which is not considered to be sufficiently accurate.	Still existing
Electrical Connection of Point of Connection	2.11	10.33A	84 ICPs (excludes the three erroneous active updates and ICP 0302251553LC47E) updates not certified within five business days of electrical reconnection. Three ICPs not recertified within five business days of un-bridging.	Still existing
Changes to registry information	3.3	10 of schedule 11.1	Registry not updated within 5 business days of the event for some status updates, MEP nominations and trader updates.	Still existing
Trader responsibility for an ICP	3.4	11.18	Some invalid MEP nominations were sent.	Still existing
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.	Still existing

Subject	Section	Clause	Non-compliance	Status
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	249 with "Don't know" ANZSIC codes assigned. Some of these will be invalidly assigned. 31 of the 102 ICPs checked had incorrect ANZSIC codes assigned.	Still existing
Changes to unmetered load	3.7	9(1)(f) of Schedule 11.1	ICP 0007301973NVCDF with missing unmetered load details (since corrected). ICP 0015723581ELA43 has a single-phase meter on a telecommunications amplifier with a multiplier of 101 to cater for an additional 100 unmetered load connections.	Still existing
Management of "active" status	3.8	17 Schedule 11.1	Ten of a sample of 20 reconnections updates were invalidly processed. Two reconnections were made active for the incorrect active date. One HHR reconnection with an incorrect active date.	Still existing
Management of "inactive" status	3.9	19 Schedule 11.1	Three ICPs with incorrect inactive status.	Still existing
Losing trader response to switch request and event dates - standard switch	4.2	3 & 4 of schedule 11.3	Five of a sample of 14 AN files checked contained incorrect response codes of either AA or AD.	Still existing
Losing trader must provide final information - standard switch	4.3	5 of schedule 11.3	26 CS (CS received after an AN) switch breaches. Four WR (switch completion after withdrawal rejection) switch breaches. One of the ten ICPs sampled sent with an incorrect average daily consumption of zero. Three of the ten files sampled sent with an incorrect last read date. One of the ten files sampled sent with incorrect last read labelled as an actual. One of the ten files sampled sent with an estimated read sent as an actual.	Still existing

Subject	Section	Clause	Non-compliance	Status
Retailers must use same reading - standard switch	4.4	(1) and 6A Schedule 11.3	Three late RR files and three late AC files for transfer switches. RR not sent for ICP 0000570766NR645 and reading from CS file was not used (from 2020 audit).	Still existing
Gaining trader informs registry of switch request - switch move	4.7	9 Schedule 11.3	Incorrect switch type used to transfer Council ICPs.	Cleared
Losing trader provides information - switch move	4.8	10 of schedule 11.3	137 late CS files (121 breach code T2 and 16 breach code WR). One incorrect switch response code of AA sent instead of AD. 107 ANs had non-compliant proposed event dates.	Still existing
Losing trader must provide final information - switch move	4.10	11 of schedule 11.3	One of the ten ICPs sampled sent with an incorrect average daily consumption of zero. Three of the ten files sampled sent with an incorrect last read date. Three of the ten files sampled sent with a last read labelled incorrectly as an actual. Two of the ten files sampled sent with incorrect last reads.	Still existing
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	Incorrect reading used when the Mercury RR was rejected (from 2020 audit). 57 late RR files and 17 late AC files for switch moves.	Still existing
Gaining trader to advise the registry manager - gaining trader switch	4.14	16 of schedule 11.3	Ten late CS files sent. One HH CS file for 1002045936LC604 (01/10/2020) was sent with METERINSTALL, METERCOMP and METERCHANNEL rows.	Cleared

Subject	Section	Clause	Non-compliance	Status
Withdrawal of switch requests	4.15	17 & 18 of schedule 11.3	144 NA (NW delivery after switch completion) switch breaches. Four NW (NW delivery before switch completion) switch breaches. 11 SR (NW after initial withdrawal rejection) switch breaches. 21 AW (AW delivery) switch breaches. Three late WC (acceptance withdrawal cycle resolution) switch breaches.	Still existing
Metering information	4.16	21 of schedule 11.3	One transfer move switch sent with an incorrect last read. Two switch move switches sent with incorrect last reads.	Still existing
Unmetered threshold	5.2	10.14 (2)(b)	Eight standard unmetered ICPs with unmetered consumption over 6,000 kWh per annum.	Cleared
Unmetered threshold exceeded	5.3	10.14 (5)	Eight standard unmetered ICPs with unmetered consumption over 6,000 kWh per annum were not corrected within the required timeframe.	Cleared
Distributed unmetered load	5.4	11 Schedule 15.3, Clause 15.37B	Errors found in nine databases. The specific findings are detailed in the DUML database audit reports.	Still existing
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 14 ICPs. Some ICPs with distributed generation not quantified.	Still existing
Responsibility for metering at GIP	6.2	10.26 (6), (7) and (8)	One meter certificate expiry date is yet to be updated. Two meter certification expiry dates were updated late.	Still existing
Collection of information	6.5	2 Schedule 15.2	ICP 0305679023LC074 was unable to be read in the previous three months and has a maximum interrogation cycle of 90 days. ICP 0000536540NRECD was unable to be read between 13/12/19 and May 2020 and has a maximum interrogation cycle of 45 days.	Still existing

Subject	Section	Clause	Non-compliance	Status
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	The best endeavours requirement was not met for 34 ICPs not read during the period of supply.	Still existing
Meter data used to derive volume information	9.3	3(5) of schedule 15.2	Raw meter data is rounded upon receipt and not when volume information is created.	Still existing
Calculation of ICP days	11.2	15.6	Inaccurate ICP days were reported for one ICP.	Cleared
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Cleared
Creation of submission information	12.2	15.4	At least four ICPs have solar generation but submission is not occurring.	Still existing
Allocation of submission information	12.3	15.5	One ICP recorded with the incorrect NSP.	Cleared
Accuracy of submission information	12.7	15.12	Inaccurate submission as follows: • Intellihub does not provide raw meter data to replace estimates for periods greater than 15 days. The quantify of estimates remaining is unknown. • 3 incorrect switch meter reads used in submission. • ICP 0000160705CKEE2 had a 16/08/19 NSP change processed from 01/01/10. This is now resolved. • ICPs 0327312033LC2D6 and 0000184853CTB54, did not have settlement units correctly set up. This is resolved and these ICPs have appeared in revision files. 2 switch event meter readings not corrected from the 2020 audit.	Still existing

Subject	Section	Clause	Non-compliance	Status
Permanence of meter readings for reconciliation	12.8	4 Schedule 15.2	FE still present for 42.84 kWh for March 2019.	Still existing
Historic estimate process	12.11	4 and 5 Schedule 15.3	Scenario A calculating incorrectly if a reconnection reading is not available.	Still existing
Forward estimate process	12.12	6 Schedule 15.3	The accuracy threshold was not met for all months and revisions.	Still existing
Historical estimate reporting to RM	13.3	10 of Schedule 15.3	Historic estimate thresholds were not met for some revisions.	Still existing

Subject	Section	Recommendation	Status
Provision of information to the registry	3.5	Utilise the audit compliance report to identify ICPs that have been electrically connected but where Mercury has not received notification.	Cleared
Provision of information to the registry	3.5	Review contractor performance management to ensure that service standards are being met.	Cleared
Changes to unmetered load	3.7	Liaise with Distributor to confirm which unmetered load is correct.	Cleared
Distributed generation	6.1	Liaise with Orion and the customer to confirm what generation is present for ICP 0007130338RNA72.	Still existing

1.11. Material Change Audits (Clause 16A.11)

Code reference

Clause 16A.11

Code related audit information

If there is a material change to any of a participant's systems or processes that are the subject of regular audits under clause 10.17A, 11.8B, 11.10, 15.37A or 15.37B, the participant must arrange for an additional audit, which must be completed in accordance with this Part no later than 5 business days before the change is implemented.

A material change to a system or process is a change that is likely to affect the ability of the participant to comply with any relevant provision of this Code.

Audit observation

I checked whether any material changes had occurred during the audit period.

Audit commentary

Mercury have automated the new connection process as detailed in **section 2.9**. This change has impacted Mercury's level of compliance as an issue was discovered post deployment. A material change audit should have been undertaken for such a change. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 1.11 With: Clause 16A.11 From: 01-Feb-20 To: 01-Feb-20	Material change audit not conducted for the automation of the new connections process. Potential impact: High Actual impact: Low Audit history: Once previously Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as weak as the material change was not undertaken as required by the code. This change has impacted Mercury's level of compliance as a minor issue was discovered post deployment, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Mercury agrees that a material change audit should have been conducted prior to the implementation of this change. Shortly after implementation, we identified a minor issue, an investigation was conducted to identify affected ICPs and we immediately worked to remedy the errors/issues. A system fix was implemented in Nov21 to address the issue.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
All relevant team managers have been given new guidelines on the requirements of a material change audit. We will also be reviewing any upcoming projects to ensure material change audits will be conducted where necessary. Mercury has been engaging with Veritek since Jan this year to arrange a material change audit for another upcoming change which demonstrates that this instance was a human error rather than a complete lack of awareness of this code requirement.	Ongoing	

2. OPERATIONAL INFRASTRUCTURE

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

Code reference

Clause 10.6, 11.2, 15.2

Code related audit information

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

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

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

Audit observation

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

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

Audit commentary

Registry Synchronisation

Trader and status information is maintained within SAP, and then transferred to the registry, but is also manually updated using the registry interface where necessary. The previous two audits found that some invalid registry status and trader information updates had been processed by SAP. I found evidence of this still occurring. Mercury has lodged a job with IT to investigate this. This is discussed further in **section 3.3**.

Changes to registry data managed by other participants, such as NSP changes, installation type changes, and distributor unmetered load details are automatically updated in SAP through the registry notification process. An error case is created if there are any issues with the update.

Because registry data is imported into SAP, SAP and the registry should normally align. Data discrepancies are identified daily through SAP's processes, and error cases are created for investigation and resolution. The discrepancy reports focus on recent activity on the registry.

Registry information accuracy

The analysis of the list file and AC020 report returned the following findings.

Issue	Nov 2021 Qty	Dec 2020 Qty	2020 Qty	2019 Qty	2018 Qty	2017 Qty	Comments
Active with blank ANZSIC	2	2	2	2	2	2	See **section 3.6**
Active with ANZSIC "T999" not stated	0	0	0	0	0	2	Compliant
Active with ANZSIC "T994" don't know	1,398	249	618	269	388	1,662	See **section 3.6**
UML load = zero	19	6	0	6	3	3	Nine were DUML ICPs and ten were residual load (SB) ICPs and this is compliant.
Incorrect UML load	2	0	2	-	6	2	See **section 3.7**
No MEP recorded or nominated and UML= "N"	70	90	55	105	2	2	See **section 2.11**, **3.4** and **3.7**
UML load removed and an MEP is nominated but is still UML in SAP	0	0	0	0	0	2	Compliant
Shared unmetered load incorrect	0	0	0	0	0	0	Compliant
ICPs with different UNM load to that recorded by the Distributor	2	5	11	35	40	2	See **section 3.7**.
ICPs with Distributor unmetered load populated but retail unmetered load is blank and UML flag =N	16	13	15	23	13	45	These are all DUML ICPs. See **section 3.7**.
Incorrect profile	3,884	3,828	3,478	3,010	1	1	3,884 ICPs with RPS profile recorded on the registry have

Issue	Nov 2021 Qty	Dec 2020 Qty	2020 Qty	2019 Qty	2018 Qty	2017 Qty	Comments
							distributed generation recorded. Submission data for a sample of ten of these ICPs was checked, and I found the PV1 profile was correctly applied in the AV080 NHH submissions for NHH ICPs with generation, but the PV1 profile was not recorded against the ICPs on the registry due to a limitation in SAP which can only record three characters for a profile. Refer to **section 6.1**. A typical sample of five ICPs with distributed generation with import export metering were checked and the submission was correct however ICPs where the fuel type is not Solar are reported against the PV1 profile code rather than EG1,
Incorrect statuses or status event dates	18	15	24	26	-	-	Three ICPs reconnected prior to the switch event move date. See **section 2.11**. Two ICPs of a sample of ten ICPs with no MEP nomination or metering recorded on the registry at the incorrect status. See **section 3.8**. Three ICPs of a sample of 27 ICPs with potential late meter certification had been made active for the incorrect date. See **section 3.8**. Five ICPs of a sample of 20 reconnected ICPs with expired metering certification incorrectly made active. See **section 3.8**. Four new connection ICPs recorded as active for the incorrect date from a sample of 60. See **section 3.5**. ICP switched away before being made active. See **section 3.5**.

Submission information accuracy

The following submission accuracy issues were identified:

Incorrect statuses	15 ICPs identified in **sections 3.5,3.8** and **3.9**, at the incorrect statuses causing submission inaccuracies.
Distributed generation	The list file contained 4,063 active ICPs with distributed generation capacity recorded by the distributor. Of those: • 3,955 ICPs are NHH settled. Unmetered ICP 0000001000MR7FD (Atiamuri Generation SW ICP) is an SB ICP and has the DFP profile assigned, all other ICPs have the RPS profile assigned on the registry. • 108 ICPs are HH settled and have the HHM or HHR profile assigned. 3,884 ICPs with RPS profile recorded on the registry have distributed generation recorded and import/export metering. Submission data for a sample of five of these ICPs was checked, and I found the PV1 profile was correctly applied in the AV080 NHH submissions for NHH ICPs with generation source identified as being solar, however where the generation source is not identified as being solar generation volumes are being assigned with the PV1 profile also which is incorrect as the correct profile code to use is EG1. The PV1 profile was not recorded against the ICPs on the registry due to a limitation in SAP which can only record three characters for a profile. The incorrect profiles on the registry are recorded as non-compliance below. 71 of the NHH settled ICPs and 22 HHR ICPs with generation capacity recorded by the distributor do not have settled I flow registers. 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. All HHR ICPs without injection/export metering and a typical sample of 30 ICPs without injection/export metering recorded on the registry were reviewed to determine whether distributed generation was present and found: Analysis found that 24 NHH ICPs and one HHR ICP have solar generation, but submission is not occurring.
HHR settled ARC Innovations meters	There is an issue with ARC Innovations meters when used for HHR settlement. The on-site setup is that a meter pulses into a data storage device, which counts the pulses and "stores" them every 200 pulses which equals 0.1 kWh. There is only one decimal place, so the smallest increment of consumption is 0.1. The issue is made worse for installations with a multiplier, for example if the multiplier is 100, the smallest increment per interval is 10 kWh, which means the accuracy per interval is poor. Unfortunately, this means the HHR data derived from ARC meters is not considered to be accurate in accordance with Clause 15.2. The total kWh per month will be accurate but if volumes are not recorded and reported against the correct trading period, but Mercury may not be charged at the wholesale rate that applied during the trading period when the electricity was consumed. 1,463 active HHR settled category 1 and two HHR settled category 2 meters are affected.
Alleged breaches	One ICP was missed on the AV090 and AV140 file for the February 2020 revision 14 resulting in under submission of 64,497.92 kWh. Revised files were provided and included in the published allocation results.
Incorrect compensation factors	ICP 0005011390CNB4E incorrect multiplier applied to HHR volumes by EDMI from December 2017 to July 2021. HHR corrections are not able to be applied across all affected consumption periods because some are outside the 14-month revision window.

Category 3 ICP submitted as NHH	Category 3 ICP 1002125124LCA15 does not appear in the AV 140 HHRAGGS file so is being submitted as NHH

I followed up the submission accuracy issues identified in the previous audit to determine whether they were resolved:

- ICP 0007130338RNA72 is indicated by Orion to have wind generation, which was confirmed to be correct in their report. This matter is still being investigated and I have left in the recommendation,

Description	Recommendation	Audited party comment	Remedial action
Distributed Generation	Liaise with Orion and the customer to confirm what generation is present for ICP 0007130338RNA72.	We have reached out Orion again as customer advice suggests solar generation, but Orion suggests wind. We will follow up and arrange for appropriate metering to be installed once correct details have been confirmed.	Investigating

- ICP 0004922952WE458 is confirmed not to be exporting to the grid and therefore the distributor should remove these details from the registry, and
- the previous audit recorded that ICP 0001448727UN8E8 had metering on site, but MNON was nominated in error for 12 February 2011 and due to subsequent registry events Mercury were unable to nominate Metrix for the correct date; the issue has been resolved and Metrix are correctly recorded as the MEP from the initial electrical connection date onwards.

NHH corrections

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. In all cases, the correction was processed accurately, and consumption flowed through to submission files. Where the ICP is currently being settled using the HHM profile the ICP settlement methodology is changed from HHR to NHH, and this change is backdated to enable the correction of the consumption volumes to be applied as a NHH correction.
Incorrect multipliers	Six ICPs with incorrect multipliers were identified by Mercury during the audit period. In all cases, the errors were corrected, and consumption flowed through to revision files.
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. Mercury provided five examples of bridged meters which were unbridged during the audit period. Consumption during the bridged period had been estimated for all five examples and correct submission occurred.
Consumption while inactive	Consumption that has occurred while an ICP is inactive will only be reported if the status is corrected back to active within SAP. The historic estimate process apportions consumption between reads to the days that the ICP has been active during the read period. Consumption while inactive is identified by the data analysts. A report is run that identifies all ICPs with an inactive status and consumption. However, this report does not identify all inactive ICPs with consumption as it only considers consumption measured between two actual validated meter readings in SAP and where an estimated disconnection read is applied, the consumption between this disconnection estimate read and the next actual validated read is not considered or reported. Currently there 270 ICPs (22,587 kWh) an increase from 84 ICPs (10,584 kWh) during the last audit. 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. I reviewed an extreme case sample of all 21 ICPs with more than 200 kWh of inactive consumption and found than in most cases the disconnection date in the report was aligned with the inactive date in the registry. The findings from the 21 examples were as follows: • for 14 ICPs the inactive period is only one day. The inactive status was replaced or reversed on the registry indicating a phantom record present in the report, • four ICPs there was EIEP1 consumption records for part of the inactive period indicating some of the inactive consumption was reported in AV-080, and. • two ICPs switched out on the disconnection reading from the date of disconnection, so all kWh was accounted for.
Unmetered load corrections	I checked a sample of five changes to unmetered load details and they were all conducted correctly.

The last audit noted that ICP 0048240328PCC75 is supplied by Powerco's "Basepower" system, which is a solar installation with batteries and a diesel backup generator. It is not connected to the network and is has been corrected to "inactive-vacant" as the customer wishes to retain the ICP.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 10.6,11.2 & 15.2 From: 01-Jan-21 To: 31-Jan-21	Some registry discrepancies resulting in submission inaccuracies. Some ICPs with distributed generation not quantified. Consumption on inactive ICPs not always corrected as soon as practicable. Arc provides interval data to one decimal place, which is not considered to be sufficiently accurate. Generation interval data for Maraetai increments in units of 10 kWh with zero decimal places. Potential impact: High Actual impact: Medium Audit history: Multiple Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	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 medium because of the impact on settlement. 31 ICPs with corrections in 2021 were checked with an average number of impacted days being 389 and 11 ICPs impacted more than 365 days – the length of time to investigate and resolve these issues is resulting in volumes for historical periods being reallocated to fit within the 14 month wash up window. Total volume correction was over 0.5 GWh.

Actions taken to resolve the issue	Completion date	Remedial action status

Some registry discrepancies resulting in submission inaccuracies. Specific comments are included in the relevant sections of this report. **Some ICPs with distributed generation not quantified.** See comments in section 6.1. **Consumption on inactive ICPs not always corrected as soon as practicable.** See comments in section 9.5. **Arc provides interval data to one decimal place, which is not considered to be sufficiently accurate.** This issue is not limited to Mercury as a Trader and we understand ARC is working with the EA on a resolution. **Generation interval data for Maraetai increments in units of 10 kWh with zero decimal places.** See comments in section 12.7.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	N/A	

2.2. Provision of information (Clause 15.35)

Code reference

Clause 15.35

Code related audit information

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

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

2.3. Data transmission (Clause 20 Schedule 15.2)

Code reference

Clause 20 Schedule 15.2

Code related audit information

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

Audit observation

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

- Mercury received NHH readings from MRS (AD Reilly), and from MEPs.
- Mercury received HHR data from AMS and EDMI.
- Generation data is received via SFTP, and automatically imported into SAP.

To confirm the process, I traced:

- HHR volumes for three NSPs from the source files to the HHR aggregated submission to confirm the process, and
- generation HHR volumes for two grid metering points.

Audit commentary

NHH

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

MRS provide a daily file for all reads obtained the previous day via FTP. MRS 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 two readings each for IntelliHUB (including Counties Power), AMS, Smartco, Arc and MRS 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 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. It was observed that the interval data for Maraekai Power Station was in increments of 10 kWhs indicating a potential precision issue in the process of downloaded these meters and a recommendation to investigate the level of precision of grid generation bus meters is described in **section 12.5.**

Audit outcome

Compliant

2.4. Audit trails (Clause 21 Schedule 15.2)

Code reference

Clause 21 Schedule 15.2

Code related audit information

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

The audit trail must include details of information:

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

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

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

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

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

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

Audit observation

A complete audit trail was checked for all data gathering, validation and processing functions. I reviewed audit trails for a small sample of events. 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. However, after six months all reads held within the SAS system are available for historic estimation (HE) calculation meaning all estimate and customer reads are now considered permanent estimates. This change in the treatment of these reads is not reflected in SAP and I could not see an appropriate audit trail held in the SAS system that reflects this change for each reading not confirmed as a validated actual meter reading.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 21 Schedule 15.2 From: 19-Mar-21 To: 31-Dec-21	Audit trail not kept where SAP estimates and customer reads are made permanent estimates. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong as the audit trails around data gathering, validation and processing functions in SAP as excellent. The non-compliance is around the mass treatment of estimates and customer reads after six months in the SAS system.

Actions taken to resolve the issue	Completion date	Remedial action status
We will be reviewing our process on permanent estimates and our treatment of customer and estimated reads and will review what audit trails need to be put in place to become compliant here.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	Dec 22	

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.

A discussion was held regarding knowledge of any ICPs with loss compensation present. The presence of loss compensation factors was checked.

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 1 or more metering installations for the point of connection.*

Audit observation

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

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. Mercury then contacts the network to request the creation of an ICP.

The new connection process was automated using the B2B tool from 21/03/21 for AMS and 21/06/21 for Intellihub. When the AFS job is created the master data process claims the ICP in the registry and moves it to the "inactive - new connection in progress" status. When the job is issued to the contractor the MEP nomination is sent. This process did not work as expected when it was deployed if the ICP was still at the "new" status on the registry. In these instances when the job was closed out the ICP was moved to the "inactive - new connection in progress" status when it should have been moved to "active". The process was fixed in October 2021 so that the correct status is applied. A material change audit should have been undertaken in relation to this system change. This is recorded as non-compliance in **section 1.11**. This has affected the compliance levels as detailed in **section 3.5**.

HHR New Connections

HHR new connections are initiated by the commercial operations team and monitored using the WIP spreadsheet, and by the customer's account manager. The WIP spreadsheet includes the tracking of activity so that the process is closely monitored. The "new connection in progress" status is being used for HHR new connections. The MEP is also nominated at this time.

ICP metering and MEP arrangements

The design of the new connections process does not allow ICPs to be connected without authorisation by Mercury, or an arrangement with an MEP if the ICP is to be metered.

The audit compliance report recorded 70 "active" ICPs where the metering category was 9 or blank, indicating that no meters were present, and the unmetered flag was set to no. All were checked:

Count	Comment
32	MEP accepted nomination, awaiting meter asset data.
16	These are DUML ICPs and no MEP is expected.
17	No MEP nomination was raised: • 11 of these were due to timing and have since had an MEP nominated and meters added, • two ICPs have since been disconnected and moved to an inactive status, • two ICPs (0000513428NR4C0 and 0000027221WE41D) are active but have no metering or unmetered load recorded; this is recorded in **sections 2.1** and **2.11**, and • two ICPs (0128950536LC139 and 0042710550PCB39) are recorded on the registry as "active" but are disconnected; this is recorded as non-compliance in **sections 2.1** and **3.8**.
5	Metering details were populated on the registry after the report was run.
70	Total

The audit compliance report identified 17 new connections where an MEP nomination was not accepted within 14 business days. None were genuine breaches:

- 13 new connections were for unmetered load, and
- for ICP 0000573343NR8BE the ICP became active on 15 November 2021, the MEP was nominated on 19 November 2021, and accepted on 21 November 2021.

Audit outcome

Compliant

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

Code reference

Clause 10.33(1)

Code related audit information

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

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

Audit observation

The new connection process was examined in detail to evaluate the strength of controls. Temporary electrical connections were discussed.

Audit commentary

If a temporary electrical connection is required, Mercury will ensure that the ICP is claimed so that they are recorded as responsible for the ICP in the registry.

Mercury was not aware of any new connections which were temporarily electrically connected during the audit period, and none were identified.

Audit outcome

Compliant

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

Code reference

Clause 10.33A(1)

Code related audit information

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

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

Audit observation

The new connection process was examined in detail to evaluate the strength of controls. The AC020 report was examined to confirm process compliance and that controls are functioning as expected.

Audit commentary

Active ICPs without metering

The audit compliance report recorded 70 "active" ICPs where the metering category was 9 or blank, indicating that no meters were present, and the unmetered flag was set to no. All were checked:

Count	Comment
32	MEP accepted nomination, awaiting meter asset data.
16	These are DUML ICPs and no MEP is expected.
17	No MEP nomination was raised: • 11 of these were due to timing and have since had an MEP nominated and meters added, • two ICPs have since been disconnected and moved to an inactive status, • two ICPs (0000513428NR4C0 and 0000027221WE41D) are active but have no metering or unmetered load recorded; this is recorded as non-compliance below and in **section 2.1** • two ICPs (0128950536LC139 and 0042710550PCB39) are recorded on the registry as "active" but are disconnected; this is recorded as non-compliance in **sections 2.1** and **3.8**.
5	Metering details were populated on the registry after the report was run.
70	

New Connections

The new connection process has been automated using the B2B tool during the audit period. When the AFS job is created the master data process claims the ICP in the registry and moves it to the "inactive - new connection in progress" status. When the job is issued to the contractor the MEP nomination is sent.

Analysis of AC020 trader compliance report found 100 new connections were not certified within five business days of electrical connection. 26 had unmetered builders' temporary supplies prior to being metered, and 20 had permanent unmetered load and did not require meter certification.

27 ICPs had no meter certification populated at the time the report was run. A typical sample of ten of these were examined and found:

- six ICPs were due to timing and the metering has since been loaded to the registry and these were certified within five business days, and
- the remaining four ICPs are still awaiting the metering to be loaded to the registry - I reviewed the metering paperwork and found all but ICP 1002074617LC897 were certified within five business days; this is recorded below as one of a total of six ICPs not certified within five business days.

27 ICPs had a late meter certification recorded. Certification is an MEP responsibility, but their delay will cause Mercury to be non-compliant. A typical sample of ten late certifications were checked and found:

- five ICPs (1002111121LC0F6, 1002109629LC801, 1002139690LC5CE, 1002139688UN763 and 1002139491LC38C) were certified late; this is recorded below as five of a total of six ICPs not certified within five business days,
- three ICPs (1099581350CN318, 1002139114LCE8C and 1002147325UN75B) were made active for a date earlier than they were electrically connected, they were all certified within five days of electrical connection and the incorrect active date is recorded as non-compliance in **sections 3.5** and **3.8**,
- two ICPs (0007199817RN1BF and 1002137679LC9E5) appear to be certified late but the earlier meter certification hasn't been loaded to the registry and I confirmed that these were certified within five business days and are compliant.

Reconnected ICPs

Metering installations at 148 ICPs were not certified within five business days of reconnection. Mercury runs a weekly report to identify any reconnected ICPs with expired meter certification. A request is then sent to the MEP to certify the site.

A typical sample of 20 ICPs with expired meter certification were examined and found:

- five ICPs (0000005362UN5B0, 0002011840CNC22, 0005327660RNC40, 0005770475RNF0E and 0005932998RND24) were incorrectly updated to active by SAP as has been identified in the last two audits; it was thought to have been resolved in September 2020, but the last audit identified two examples post September 2020 and it is still evident in this audit - another IT ticket has been logged to investigate and resolve why this is happening but the incorrect status is recorded as non-compliance in **section 3.8**,
- three ICPs (0003553604AL622, 0000800946WE3F5 and 1001122367LC1DC) were recorded as disconnected on the registry by the losing trader but were confirmed to be active at the time of the switch in and Mercury corrected the status to active; as there was no physical reconnection, Mercury is not required to request the MEP to recertify the meter and compliance is confirmed,
- four ICPs (0401969037LC9CD, 0000144728UN7DC, 0001721527PC2C5 and 0000150844TR084) were identified that took longer than five business days from reconnection to be recertified; this is recorded as non-compliance,
- three ICPs (0005006201RN72D, 0000022951CPDBC and 0000383590TEF3B) were not recertified within five business days due to a resource constraint in May-July 2021 that delayed these being processed; this is recorded as non-compliance,
- two ICPs (0000528852NR1CC and 0001025160PC220) were certified late due to COVID 19 pandemic causing delays; this is technically non-compliant, but I have not recorded these as this is an exceptional circumstance,
- two ICPs (0000206171UN3E2 and 0000250500UN04F) switched out before the meter could be recertified; this is recorded as non-compliance, and
- ICP 0000193300UNCAD was returned to active due to revenue assurance identifying consumption on disconnected; this is recorded as non-compliance.

Three switch move ICPs (0000020836DE35E NTMI 8 April 2021, 0000107389UN6F NTMI 26 March 2021 and 0006800653RN6DB NTMI 20 March 2021) were reconnected by Mercury prior to the NT request date, resulting in the losing trader buying the day/s post the reconnection by Mercury. The switch is expected to be requested for the reconnection date and it is unclear why this has happened in these cases.

Bridged meters

Mercury confirmed five ICPs were bridged to reconnect during the audit period and were later unbridged. All the meters were certified on un-bridging.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.11 With: 10.33A From: 01-Jan-21 To: 21-Nov-21	Two active ICPs with no metering installed and no unmetered load. Six metered new connections had late meter certification of a sample of 20 ICPs checked. Potential population of 100 ICPs. Nine reconnections of metered ICPs of a sample of 20 ICPs had late meter certification. Potential population of 148 ICPs. Three ICPs reconnected and requested for the incorrect gain date from the losing trader. 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 the reporting in place will mitigate risk to an acceptable level and additional resource is now available to manage the workload. The audit risk rating is low as volume of ICPs affected is small overall.

Actions taken to resolve the issue	Completion date	Remedial action status

Two active ICPs with no metering installed and no unmetered load. 0000513428NR4C0 – The correct status for this ICP has now been updated. There was a delay in updating this status due to human error by new staff. 0000027221WE41D – this is a Vodafone ICP, we have been having issues arranging a site visit to verify what is on site. Meter was returned to MEP warehouse by 3rd party, but Vodafone are not aware of any work that would have resulted in the meter being removed. MEP has already removed meter from registry, but SAP isn't yet updated. This investigation is still ongoing. **Six metered new connections had late meter certification of a sample of 20 ICPs checked.** All 6 ICPs are now certified. **Nine reconnections of metered ICPs of a sample of 20 ICPs had late meter certification.** 7 ICPs are now certified and 2 have switched out. **Three ICPs reconnected and requested for the incorrect gain date from the losing trader.** In each of these instances, when the switch was initiated, the customer had requested a future dated move in. The customers then later called our customer engagement centre to arrange a reconnection before the requested move in date. The reconnections were processed only 1-2 days prior to the switch date so the impact was minimal.	2/3/22 Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Six metered new connections had late meter certification of a sample of 20 ICPs checked. **Nine reconnections of metered ICPs of a sample of 20 ICPs had late meter certification.** This non-compliance is due to the non-compliance of the MEP. Delays are often caused by late paperwork & multiple jobs being issued if initial certification job is not completed. We will look at if our reporting can be improved and will continue to work with MEPs to improve in this area. **Two active ICPs with no metering installed and no unmetered load.** We will ensure process documentation is clear and is followed by new staff to mitigate human error. We have monthly reporting to identify active ICPs with no metering which we believe is effective in mitigating risk in most cases. **Three ICPs reconnected and requested for the incorrect gain date from the losing trader.** We will be raising this with our Customer Engagement Centre to ensure agents are mindful when processing reconnections that these must match or be later than the switch in date.	Apr 22	

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 reviewed.

Audit commentary

Mercury have previously demonstrated the existence of either a UoSA or other trading arrangement for all networks it trades on. Mercury did not begin trading on any new networks during the audit period.

Audit outcome

Compliant

2.13. Arrangements for metering equipment provision (Clause 10.36)

Code reference

Clause 10.36

Code related audit information

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

Audit observation

The process to ensure an arrangement is in place with the metering equipment provider before an ICP can be created or switched in was checked.

Audit commentary

Mercury have previously demonstrated that they have arrangements in place with all MEPs that manage metering in relation to their customer base. Mercury did not begin supplying any ICPs with other MEPs during the audit period.

The new connection process also contains a step that requires the nomination of an MEP.

Audit outcome

Compliant

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

Code reference

Clause 10.33B

Code related audit information

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

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

Audit observation

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

Audit commentary

If an ICP was reconnected as part of the switching process and the switch was later withdrawn, Mercury would restore the disconnection and reimburse the losing trader for any direct costs incurred if requested. No incidents of this occurring were identified. The accuracy of the switch date vs the reconnected date is discussed in **section 3.8**.

Audit outcome

Compliant

2.15. Electrical disconnection of ICPs (Clause 10.33B)

Code reference

Clause 10.33B

Code related audit information

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

Audit observation

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

Audit commentary

Mercury checks they are listed as the current trader in the registry before initiating a disconnection. If the meter is an AMI meter a remote disconnection will be requested in the first instance. Wells and Top Energy are used for all physical disconnections.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

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

Audit observation

Policies and processes for removal and breakage of seals were reviewed.

A sample of disconnections, reconnections, additions of export metering, and bridged meters were checked for compliance.

Audit commentary

Mercury does not remove or break seals, work is completed by appropriately qualified staff. A job is raised for any such incidents and issued to the MEP to return to site and reseal and recertify the meter.

Mercury has agreements in place with MEPs, and MEPs are required to ensure that only qualified personnel perform work and manage and trace seals. MEPs do not usually provide details of seals in their job completion paperwork.

Mercury receives work completion paperwork from MEPs and uses this information to confirm the correct ICP attributes including status and profile; and updates their system and the registry.

I checked a sample of 40 disconnections, 20 reconnections and five bridged meters and found that where physical disconnection or reconnection was initiated, the MEP was advised where the ICP was metered, or remote disconnection or reconnection had occurred.

Audit outcome

Compliant

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

Code reference

Clause 10.33C and 2A of Schedule 15.2

Code related audit information

A trader, or a distributor or MEP which has been authorised by the trader, may only electrically connect an ICP in a way that bypasses a meter that is in place ("bridging") if, despite best endeavours:

- *the MEP is unable to remotely electrically connect the ICP*
- *the MEP cannot repair a fault with the meter due to safety concerns*
- *the consumer will likely be without electricity for a period which would cause significant disadvantage to the consumer*

If the trader bridges a meter, the trader must:

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

The trader must determine meter readings as follows:

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

Audit observation

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

Audit commentary

Bridged meters would be identified through the read validation process, or reconnection paperwork returned from the contractor. Meters will only be bridged if they cannot be reconnected without bridging

and delaying reconnection would cause significant disadvantage to the customer because they would be without hot water or power.

Mercury confirmed five ICPs were bridged to reconnect during the audit period and were later unbridged. All the meters were certified on un-bridging. All five bridged meter corrections / estimation calculations were reviewed and all five corrections were correctly applied in SAP.

All five ICPs related to these bridged meter corrections were flagged as being submitted as NHH. Where an ICP is submitted as HHR, and a bridged meter scenario occurs then Mercury will transition the ICP to NHH submission prior to the bridged meter event to enable the volume correction to be undertaken as NHH.

Audit outcome

Compliant

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

Code reference

Clause 11.30

Code related audit information

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

Audit observation

A sample of invoices and letter templates relating to invoicing were reviewed to confirm that the ICP number is present.

Audit commentary

Invoices and credit notes contain the ICP number, and ICP numbers are included in communications relating to the sale of electricity. Only the account number is included on correspondence relating to payments, as one account can have one or many ICPs attached.

Audit outcome

Compliant

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

Code reference

Clause 11.30A

Code related audit information

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

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

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

Audit observation

The process to ensure that information on Utilities Disputes is provided to customers was discussed. A sample of invoices, correspondence, and recorded greetings for inbound calls were reviewed to determine whether clear and prominent information on Utilities Disputes is provided.

Audit commentary

Clear and prominent information on Utilities Disputes is provided:

- in Mercury's terms and conditions under section 16 dispute resolution,
- on Mercury's website under https://www.mercury.co.nz/help/contact-us/formal-complaints,
- on invoices,
- on outbound letters,
- in inbound calls, and
- in emails

Audit outcome

Compliant

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

Code reference

Clause 11.30B

Code related audit information

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

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

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

Audit observation

The process to ensure that information on Powerswitch is provided to customers was discussed. A sample of invoices and correspondence were reviewed to determine whether clear and prominent information on Powerswitch is provided.

Audit commentary

Clear and prominent information on Powerswitch is provided:

- on Mercury's website under https://www.mercury.co.nz/pricing ,
- on outbound letters relating to pricing and billing,
- on invoices,
- on other correspondence, and
- on annual notification.

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 processes were examined in detail to evaluate the strength of controls, and the registry list and audit compliance reports were examined to confirm process compliance. Late updates to active for new connections are discussed in **section 3.5**.

Audit commentary

The new connection processes are detailed in **section 2.9** above.

I walked through the registry update process for a sample of 71 new connections including HHR and NHH. The accuracy and timeliness of registry updates is discussed in **section 3.5**.

Audit outcome

Compliant

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

Code reference

Clause 10 Schedule 11.1

Code related audit information

If information provided by a trader to the registry manager about an ICP changes, the trader must provide written notice to the registry manager of the change no later than 5 business days after the change.

Audit observation

The process to manage status changes is discussed in detail in **sections 3.8** and **3.9** below. The process to manage MEP nominations and trader updates was discussed.

The AC020 reports for each code were reviewed. A sample of late status updates, trader updates and MEP nominations were checked as described in the audit commentary.

Audit commentary

Status updates

The timeliness of status updates to active (for reconnections) is set out on the table below.

Event	Year	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Reconnections	2017	205	21.2	83%
	2018	758	26.3	74%

Event	Year	ICPs notified greater than 5 days	Average notification days	Percentage compliant
	2019	791	17.6	80.1%
	2020	923	14.52	82.74%
	Dec 2020	624	7.97	85.93%
	Nov 2021	**707**	**7.01**	**86.95%**

The level of compliance for reconnections has continued to improve 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. Where the automatic update fails, the registry and SAP are updated manually.

Field services jobs are closely monitored to ensure that they are completed, and paperwork is returned. Daily reminders are issued to contractors where paperwork is due. This process is automated for Wells using a B2B system. A report of open jobs for other contractors is generated, and Mercury's inboxes are checked for paperwork before issuing reminders. In addition, a weekly report is generated for all ICPs which are disconnected but have an active customer account. This report identifies ICPs which are likely to have been reconnected so that paperwork can be followed up.

707 updates were completed more than five business days after the event date. 351 of those were more than ten business days after the event date, 132 more than 30 business days, 51 more than 90 business days, and 36 more than 200 business days. The latest update was 1,909 business days after the event date.

I checked the ten latest updates (between 352 and 1,909 business days after the event date) and ten between 30 and 200 business days after the event date:

- six ICP updates (0328245577LCBF2, 0804350311LCC90, 0000374687TU206, 0000048523UNCE3 0006309952WECAE and 1002037924LC5D5) were due to the reconnection being completed upon switch in but the status was not updated to active, and it appears that these took some time to be identified and then corrected,
- four ICP updates (0291486487LC763, 0003400310CA105, 0000129110UNC4E and 0000001231EN6BD) were as a result of reporting to identify consumption on disconnected ICPs,
- three ICP updates (1000509218PC302, 0106021680LCA5A and 1000015235BPB4E) were due to backdated switch ins and these were updated as soon as the switch completed,
- three ICP updates (0000310248TU2EE, 0000671438UND75, 0000005362UN5B0) were updated to active for dates in 2014 incorrectly due to an SAP bug - this issue has been identified in the last two audits; it was thought to have been resolved in September 2020, but the last audit identified two examples post September 2020 and it is still evident in this audit - another IT ticket has been logged to investigate and resolve why this is happening but the incorrect status is recorded as non-compliance in **section 3.8**,
- three ICP updates (0002011840CNC22, 0005769035RN5EB and 0124218563LC213) were corrections to the active date, identified through validation processes, and
- ICP 0860556908LCB10 was delayed due to the Christmas shutdown.

The timeliness of status updates to inactive is set out on the table below.

Event	Year	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Disconnection	2019	588	11.34	86.49%
	2020	512	7.07	87.39%
	Dec 2020	337	7.86	92.16%
	Nov 2021	**713**	**6.46**	**89.14%**

Field services jobs are closely monitored to ensure that they are completed, and paperwork is returned, using the same processes as for reconnections. Status updates for credit disconnections are updated on a weekly basis, back to the first full day with no power.

The process is automated so that the status in SAP is updated when the service request is completed. Where an ICP is disconnected and promptly reconnected, paperwork may be received out of order. As reported in previous audits, this can result in the reconnection being processed before the disconnection, leaving the ICP with an incorrect status in SAP and on the registry. Processes are in place to identify and correct statuses where paperwork has been processed out of order, including monitoring of consumption on inactive ICPs. I found no evidence of these ICPs not being corrected.

713 updates were completed more than five business days after the event date.

- 393 of those were updates to 1,12 (inactive - new connection in progress) status. 321 of those were completed prior to the initial electrical connection date and are compliant. 72 were completed after the initial electrical connection date and are non-compliant. I checked an extreme example of the ten latest and found:
    - five ICPs (0000049722HR9AB, 1000598617PC6B9, 1002139255LC36F, 1000598455PCE9E and 1000595930PC309) were made "active" from the claim date and these updates were to correct the ICPs status to "inactive - new connection in progress" and then the correct active date was applied,
    - two ICPs (0000050317ML181 and 1000598771PC1C2) were also corrections to the active date but these were advised by the network, and
    - two ICPs (1002139824UNA69 and 0110012278EL0C2) were due an issue that was discovered post the automation of the new connection process that occurred when the ICP was at the "new" status when the job was closed out the ICP was moved to the "inactive - new connection in progress" status when it should have been moved to "active" - this is discussed further in **section 2.9**.
- 320 of the late updates were to other inactive statuses and were genuinely late. 227 of those were more than ten business days after the event date, 114 more than 30 business days, 52 more than 90 business days, and 30 more than 200 business days. The latest update was 2,351 business days after the event date. A sample of 32 late updates were checked:
    - the ten ICPs recorded as electrically disconnected due to meter disconnected were all sites where the MEP has advised the meter has been returned to the warehouse, these are potentially ICPs that need to be decommissioned but Mercury moves these to this status and waits for the distributor to contact them if a decommissioning is completed - I note that the volume of ICPs in this status has grown from 25 in 2017 to 1,743 ICPs and I recommend below that the process be reviewed to ensure that ICPs to be decommissioned are identified and moved to the correct status as there is a potential health and safety risk that there are ICPs at this status that have not been disconnected safely,
    - the ten ICPs recorded as "inactive - vacant" were backdated due to:

    - status corrections identified either from the last audit or via BAU discrepancy reporting for six ICPs,
    - three ICPs (0000142110TEBB8, 0133812022LCFB4 and 0000029294UNF61 were updated due to a batch process; Mercury is investigating these as it is unclear as to why these have been backdated, and
    - late advice from the network for ICP 0000053166ML07E.
- the ten ICPs updated to "inactive - ready for decommissioning" were late due to either late advice from the network or were backdated to the correct date once these details had been confirmed,
- the one late update to inactive - remotely disconnected was a correction, and
- ICP 0000023740NT6E4 was electrically disconnected at the pole fuse and was advised late by the network.

Description	Recommendation	Audited party comment	Remedial action
Changes to registry information	Review the process to manage ICPs where the meter has been removed to ensure that any ICPs to be decommissioned are identified and advised to the distributor.	We will review our process to ensure distributors are notified when meters have been confirmed as having been removed. It is difficult to confirm when an ICP is to be decommissioned if we do not have a current customer, however we will review what extra steps/checks can be put in place to ensure for timelier decommissions.	Investigating

Trader updates

For HHR ICPs MEP nominations are managed directly on the registry. For NHH ICPs MEP nominations are normally created from SAP but may also be created manually on the registry. MEP nominations for bulk meter roll outs are uploaded to the registry via files.

The timeliness of trader updates to inactive is set out on the table below.

Event	Year	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Trader updates, including MEP nominations	2019	76,952	37	9.5%
	2020	39,229	13.47	32.51%
	Dec 2020	58,841	13.46	12.45%
	Nov 2021	**41,581**	**13.74**	**37.90%**

41,581 updates were completed more than five business days after the event date. 35,339 of those were more than ten business days after the event date, 5,219 more than 30 business days, 434 more than 90 business days, and 50 more than 200 business days. The latest update was 1,972 business days after the event date.

I checked a diverse sample of 15 late updates, including at least five per update type (or all if less than five) and the five latest updates:

- four were corrections to the unmetered load; three were identified in the last audit and the last via the BAU registry discrepancy processes,

- four were due to human error where ANZSIC updates were backdated in error,
- two were corrections to the submission type from HHR to RPS; these often take more than five business days to be processed as these are only updated once data has not been supplied for some weeks,
- two were corrections for ICPs 0047210100PC6B1 and 0001444291UN550 where the original update to registry had failed but this wasn't identified at the time; the process has been modified since these occurred so that a bulk upload of changes is uploaded in SAP and also sent to the registry each day where previously these were uploaded to SAP and then to the registry,
- the profile and submission type for ICP 0006176674RN620 was updated directly in the registry but the event date was not updated resulting in this change being applied for the incorrect period; this has been corrected,
- ICP 1002124926UN129 was a backdated HHR new connection so the ANZSIC code was not populated to the registry until this was completed, and
- ICP 0494737425LC4C8 was backdated to nominate the correct MEP post a switch withdrawal.

The audit compliance report recorded 388 ICPs where the ANZSIC code was updated later than 20 business days after the Mercury commenced trading. I checked the ten latest updates and found:

- two related to backdated switches and the trader record was added as part of the switching process, and
- the remaining eight were backdated new connections and the trader record was added the day the active status update was completed, or the day after.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: Clause 10 of schedule 11.1 From: 05-Jan-21 To: 18-Nov-21	707 updates to active status for reconnections were made more than five business days after the event date. 72 updates to inactive - new connection in progress status were made after the initial electrical connection date. 320 updates to inactive statuses apart from inactive - new connection in progress were made more than five business days after the event date. 41,581 late trader updates. 388 ANZSIC code updates were not completed within 20 business days of commencement of trading. 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 and will mitigate risk most of the time. The audit risk rating is assessed to be low, as the timeliness to update the registry is consistent and controls are improved.

Actions taken to resolve the issue	Completion date	Remedial action status
72 updates to inactive - new connection in progress status were made after the initial electrical connection date. Since going live with B2B in March 21 for Vector AMS and June 21 with Intellihub, we identified up a few minor issues with the application of this status. We received ICT support and fixes were put in place between Jul21 and Nov21. A report of all jobs issued between Jun21 and Nov21 was reviewed to ensure any affected jobs/ICPs were identified and corrected as necessary. We will be completing a secondary check of this list to ensure no errors have been missed. **707 updates to active status for reconnections were made more than five business days after the event date.** **320 updates to inactive statuses apart from inactive - new connection in progress were made more than five business days after the event date.** The statuses for the 6 ICPs that had been incorrectly updated due to a system issue and batch processing have now been corrected. We have also raised separate incidents with our ICT team to investigate the cause. **41,581 late trader updates.** Our compliance for trader updates has increased from 12.45% to 37.9%. We believe that our processes are effective in most cases however, we note that there are many instances in which late updates are unavoidable (e.g. backdated switches, corrections, late notification from third parties). **388 ANZSIC code updates were not completed within 20 business days of commencement of trading.** We believe that our processes are effective in most cases however, we note that there are instances in which late updates are unavoidable (e.g. Backdated switches).	Feb 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Management of reconnection and disconnections status updates We will be reviewing some of our weekly reports to ensure no ICPs are missed from this reporting to improve our timeliness of status updates. **Incorrect status updates caused by system** Mid last year we implemented checks of the Audit Compliance Report into our BAU processes. This was to be used to identify extremely late or incorrect updates so these could be investigated, and any corrections made in a timelier manner. Unfortunately, due to staff resources and the Covid-19 lockdowns, this was not monitored as intended. The actioning of this report will now be added into weekly updates to ensure the report is actively monitored. We will also be training additional staff on this to ensure we have adequate cover for this task.	Jun 22	

3.4. Trader responsibility for an ICP (Clause 11.18)

Code reference

Clause 11.18

Code related audit information

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

A trader ceases to be responsible for an ICP if:

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

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

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

Audit observation

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

A sample of MEP nomination rejections and decommissioned ICPs were examined.

Audit commentary

Retailers responsibility to nominate and record MEP in the registry

The new connection process is discussed in detail in **section 2.9**. When the job is issued to the contractor the MEP nomination is sent. The timeliness of MEP nominations is discussed further in **section 3.3**.

Mercury have put a query in place to monitor rejected MEP nominations. This is monitored monthly. 21 (0.13%) of the 16,018 MEP nominations identified on the event detail report were rejected.

- Three rejected nominations related to 0000970120LND70 which was originally issued to SMCO and rejected. It was then reissued to NGCM three times, NGCM rejected the nomination the first two times and accepted the third time.
- A further 14 nominations were accepted on reissue to a different MEP:
    - six nominations were rejected by SMCO, but NGCM later accepted,
    - six nominations were rejected by NPOW, but MTRX later accepted,
    - one nomination was rejected by NPOW, but IHUB later accepted, and
    - one nomination was rejected by SMCO, but IHUB later accepted.
- Four rejected nominations were not reissued.

Mercury maintains a matrix of which MEP to nominate based on the connection type and region. This is updated as required. In checking the MEP rejections, it appears that the matrix was not updated when MEP changes occurred on some networks. This represents a very small percentage of all MEP nominations.

The audit compliance report recorded 70 "active" ICPs where the metering category was 9 or blank, indicating that no meters were present, and the unmetered flag was set to no. All were checked:

Count	Comment
32	MEP accepted nomination, awaiting meter asset data.
16	These are DUML ICPs and no MEP is expected.
17	No MEP nomination was raised. These were examined and found: • 11 of these were due to timing and have since had an MEP nominated and meters added, • two ICPs have since been disconnected and moved to an inactive status, • two ICPs (0000513428NR4C0 and 0000027221WE41D) are active but have no metering or unmetered load recorded. This is recorded as non-compliance below and in **section 2.1**, and • two ICPs are recorded on the registry as active but have been disconnected; this is recorded as non-compliance in **sections 2.1** and **3.8**.
5	Metering details were populated on the registry after the report was run.
70	

The audit compliance report identified 17 new connections where an MEP nomination was not accepted within 14 business days. None were genuine breaches:

- 13 new connections were for unmetered load, and
- for ICP 0000573343NR8BE the ICP became active on 15 November 2021, the MEP was nominated on 19 November 2021, and accepted on 21 November 2021.

<u>ICP Decommissioning</u>

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 disconnection. Mercury also advises the MEP responsible that a site is to be decommissioned. I recommend in **section 3.3**, that ICPs where the meter has been removed but the ICP is not decommissioned are reviewed to ensure that decommissioned ICPs are managed correctly.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.4 With: Clause 11.18 From: 01-Jan-21 To: 21-Nov-21	A small number of invalid MEP nominations were sent. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong as there are good controls in place to identify discrepancies. The audit risk rating is assessed to be low, as the volume of invalid MEP nominations was very small.

Actions taken to resolve the issue	Completion date	Remedial action status
We will review our Matrix and make any necessary updates.	Apr 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This is a minor non-compliance. We will continue with our strong controls in this area.	N/A	

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

Code reference

Clause 9 Schedule 11.1

Code related audit information

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

a) the participant identifier of the trader, as approved by the Authority (clause 9(1)(a))
b) the profile code for each profile at that ICP, as approved by the Authority (clause 9(1)(b))

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

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

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

Audit observation

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

Audit commentary

New connection information timeliness

The new connection process is described in detail in **section 2.9**. Mercury now uses the "inactive - new connection in progress status as part of the new connection process. 72 updates to 1,12 (inactive - new connection in progress) status were completed after the initial electrical connection date and are recorded as non-compliance in **section 3.3**.

The audit compliance report identified 17 new connections where an MEP nomination was not accepted within 14 business days. None were genuine breaches, as discussed in **section 3.4**.

The table below shows the timeliness of new connection updates.

Event	Year	ICPs Notified Greater Than 5 Days	Average Notification Days	Percentage Compliant
Change to active - new connections	2017	200	3.9	87%
	2018	73	4.3	79%
	2019	153	3.3	93%
	2020	488	4.71	88%
	Dec 2020	636	4.75	84.06%
	Nov 2021	**1,285**	**8.91**	**65.06%**

1,285 updates were completed more than five business days after the event date. 570 of those were more than ten business days after the event date, 159 more than 30 business days, 25 more than 90 business days, and 11 more than 200 business days. The latest update was 3,259 business days after the event date. The automation of the new connection process combined with staffing changes has

affected performance. It is believed that the teething issues with the automated process have been addressed and the team is fully resourced now.

The 20 latest NHH new connections, the two late HHR new connections, and a further five late unmetered new connections were checked:

- two of the examples were C&I HHR over Category 2:
    - ICP 1002137679LC9E5 was affected by the bug in the automation of the new connection process with the ICP being at the "new" status so when the ICP should have been made "active" it was made "inactive - new connection in progress"; this is detailed in **section 2.9**, and
    - ICP 1002147325UN75B was also affected by the automation of the new connection process; the ICP was correctly made "active" by the HHR team for 26 October 2021 but the batch process run for the automation updated this ICP incorrectly to be "active" from 27 September 2021 - this is being corrected,
- 14 late updates were due to late notification from the field or the network,
- five category 1 ICPs (1002074617LC897, 1000596685PC11B, 0007202352RN9CB, 0000050487WE552 and 0000165894CK56F) were delayed due to the automation of the new connection process as detailed in **section 2.9**,
- two category 1 ICPs (0000050317ML181 and 1002051059UNB56) were backdated to correct the first active date as part of the BAU discrepancy processes,
- two Category 1 ICPs (1002074619LCB0C and 1002074619LCB0C) needed investigation to confirm the correct details were recorded before they could be made "active",
- ICP 0000001000MR7FD was a correction from the last audit, and
- ICP 0007203853RN720 is a streetlight ICP and was notified late by the Account Manager.

New connection information accuracy

The AC020 report identified 31 ICPs with an initial electrical connection date populated which had not been made "active". 11 were timing differences, and the status was updated to "active" prior to the audit. The remaining 20 ICPs were examined and found all but two have been made "active". The 18 ICPs updated late were:

- 17 ICPs were due to the delay in the AFS being closed out; the new B2B process will not complete until the MEP has closed the service request and there is reporting in place to monitor outstanding jobs, but this was not always able to be monitored during the audit period resulting in late updates to the registry, and
- the process wasn't completed correctly for ICP 1002145001LC153, so this was updated to "active" manually 30 November 2021 for 3 August 2021.

The two ICPs that have not been made "active" were checked and found:

- ICP 0000050778HBFD6 has since been decommissioned - set up in error and the initial electrical connection date removed, and
- ICP 1000602117PCC8B is still a pending new connection and Mercury have just issued the metering job, but the distributor has recorded an initial electrical connection date of 6 October 2021 and the high-risk database records the livening date as 5 May 2021, so Mercury is investigating this.

Active dates for new connections were compared to the distributor's initial electrical connection date, and MEP's certification date using the AC020 report. The AC020 report identified 1,147 ICPs with date discrepancies. For 33 ICPs the active date and initial electrical connection date was consistent and the ICP was unmetered. The other 1,114 exceptions were checked:

Exception type	Quantity	Commentary
IECD = active date and MCD ≠ active date	3	All were confirmed to be correct
IECD ≠ active date and MCD = active date	19	A sample of five were checked and found that the first active date was correct, and the initial electrical connection date was incorrect.
IECD = active date and no MCD	35	A sample of five were checked and all were confirmed to be correct. The metering is still to be loaded to the registry for two of the sample and one was an unmetered new connection.
IECD ≠ active date and no MCD	2	All were checked and found ICP 0007199817RN1BF is correct. ICP 1002143916UN0E9 was recorded as electrically connected on 29/09/21 but was corrected to 29/07/21 on 30/11/21 to align with the initial electrical connection date and the meter certification. This was identified via the BAU registry discrepancy processes.
IECD = active date and unmetered	33	A sample of five were checked and found all were correct.
No IECD and MCD = active date	975	A sample of five were checked and found all were correct.
No IECD and no MCD	72	A sample of five were checked and two were correct. The incorrect first active dates were recorded for three ICPs (0007201529RN6A4, 1002137904UN6F8 and 1002137734LCD1F) as the ICPs were incorrectly made active from the claim date and wasn't electrically connected until later. These have been corrected.
No IECD and unmetered BTS	8	A sample of five were checked and four were correct. ICP 0007202684RN003 was made active from 25/06/21 but the network and the high-risk database have recorded the electrical connection date as 16/07/21. This ICP has since been decommissioned. This is recorded as non-compliance below and in **sections 2.1** and **3.8**.
Total	1,147	

I also checked a further 30 new connections for accuracy – from the late updates sample and those not certified within five business days, excluding those checked under accuracy and found:

- ICP 1099581350CN318 was made active for 21 June 2021 due to human error but was not electrically connected until 29 September 2021; this is being corrected.
- ICP 1002139114LCE8C was made active for 07/04/21 due to human error but was not electrically connected until 20/07/21. This is being corrected.
- ICP 1002147325UN75B was made active for 27/09/21 due to human error but was not electrically connected until 26/10/21. This is being corrected.

I identified one switch (ICP 0000048279WE539) made during the audit period where the ICP was switched while still in the "inactive - new connection in progress" status. Therefore, the first "active" date was the gaining trader's date resulting in the consumption from 2 June 2021 to 29 July 2021 not being reconciled by Mercury. This has been corrected as a result of the audit. I recommend that a check be put in place that does not allow a switch out to for ICPs in this status.

Description	Recommendation	Audited party comment	Remedial action
Provision of information	Put a check in place that does not allow a switch out to for ICPs at the "inactive - new connection in progress" status.	We will raise this with our ICT team to determine what checks can be out in place.	Investigating

This is recorded as non-compliance below and in **sections 2.1, 3.9** and **12.7**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.5 With: Clause 9 of schedule 11.1 From: 05-Jan-21 To: 18-Nov-21	1,285 late updates for new connections (65.06% updated within five business days). Three ICPs of a sample of 27 ICPs with potential late meter certification had been made "active" for the incorrect date. Four of a sample of 30 new connections with date discrepancies made "active" for the incorrect date. ICP 0000048279WE539 switched out at the "new connection in progress" status resulting in the consumption period with Mercury not being reconciled. Potential impact: Medium 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 the reporting in place will mitigate risk to an acceptable level but there is room for improvement. The audit risk rating is low as the automated new connection tool is working as expected and therefore the ICP update time is expected to improve. .

Actions taken to resolve the issue	Completion date	Remedial action status

1,285 late updates for new connections (65.06% updated within five business days). We recognise there has been a significant increase in late update for new connections. This is largely due to both staffing shortages and the B2B issue where some statuses were being updated incorrectly. The B2B fix was put into place in Nov 21 and a full review of all jobs issued between June 21 and Nov 21 was completed to correct any affected jobs/ICPs. We will also be conducting a secondary check of our list of jobs issued between Jun21 and Nov21 to ensue no errors have been missed. **Three ICPs of a sample of 27 ICPs with potential late meter certification had been made "active" for the incorrect date.** 1099581350CN318, 1002139114LCE8C, 1002147325UN75B - The active date has now been corrected for all 3 ICPs. **Four of a sample of 30 new connections with date discrepancies made "active" for the incorrect date.** 0007202684RN003, 0007201529RN6A4, 1002137904UN6F8 and 1002137734LCD1F - The statuses for these ICPs have now been corrected. **ICP 0000048279WE539 switched out at the "new connection in progress" status resulting in the consumption period with Mercury not being reconciled.** As there was consumption being recorded at this ICP, volumes were still being submitted to the market under MEEN. The status for this ICP has since been corrected.	Completed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

1,285 late updates for new connections (65.06% updated within five business days). We are currently training new staff as well as looking into what resources are available to work through current backlog and ensure work volumes are monitored effectively. We will also be reintroducing the Audit Compliance report checking as a BAU task within the team when training is complete. This should help to identify incorrect updates and any areas that may need more focus from the team. **Three ICPs of a sample of 27 ICPs with potential late meter certification had been made "active" for the incorrect date.** **Four of a sample of 30 new connections with date discrepancies made "active" for the incorrect date.** Mid 2021 we implemented checks of the Audit Compliance Report into our BAU processes. The AC020Trader21 was intended to be monitored to identify these instances. Unfortunately, due to staff resources and the Covid-19 lockdowns, this was not monitored as intended. The actioning of this report will be added into weekly updates to ensure the report is now actively monitored. We will also be training additional staff on this to ensure we have adequate cover for this task. **ICP 0000048279WE539 switched out at the "new connection in progress" status resulting in the consumption period with Mercury not being reconciled.** We will raise this with our ICT team to determine what checks can be put in place to prevent ICPs switching out on at this status.	Jun 22	

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

Code reference

Clause 9 (1(k) of Schedule 11.1

Code related audit information

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

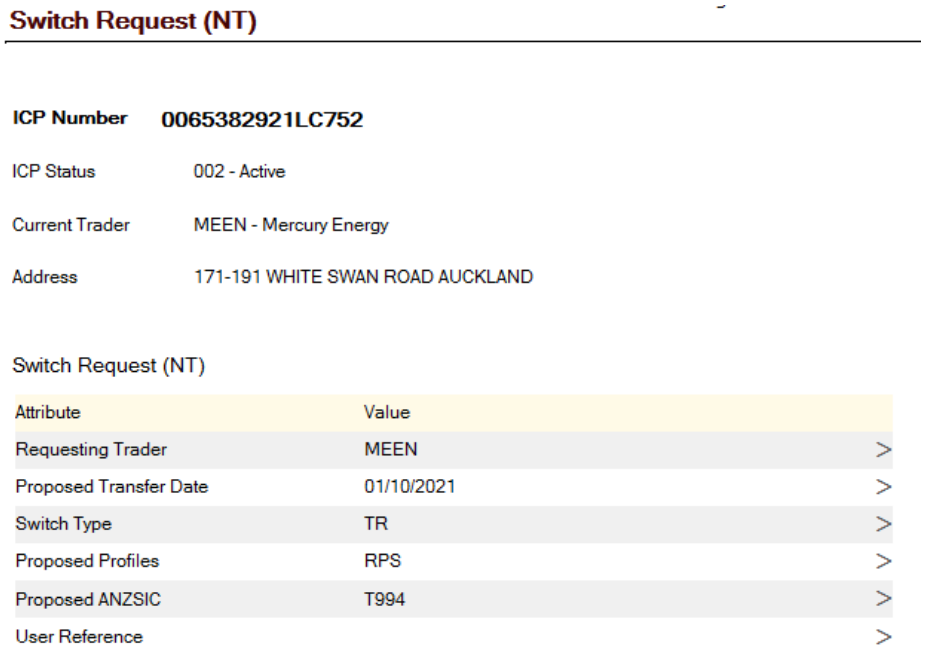
Audit observation

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

Audit commentary

ANZSIC codes are confirmed as part of the customer application process. SAS queries to identify missing and unknown ANZSIC codes are run weekly. The query results are reviewed to identify ICPs which require ANZSIC code updates. I noted in the NT files that are sent to the registry that the ANZISC code is defaulted

to T994. This is not a required field, but I wonder if this maybe where the proliferation of T994 is originating from:



Switch Request (NT)

ICP Number **0065382921LC752**

ICP Status 002 - Active

Current Trader MEEN - Mercury Energy

Address 171-191 WHITE SWAN ROAD AUCKLAND

Switch Request (NT)

Attribute	Value	
Requesting Trader	MEEN	>
Proposed Transfer Date	01/10/2021	>
Switch Type	TR	>
Proposed Profiles	RPS	>
Proposed ANZSIC	T994	>
User Reference		>

Missing ANZSIC codes

Two DUML ICPs with blank ANZSIC codes were identified on the AC020 report. The same two exceptions have been present since 2018, and 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. I have not recorded non-compliance as this is a registry issue.

ICP	SAP ANZSIC	Registry ANZSIC
0001264718UN3E4	O753	Blank
0001264719UNFA1	O753	Blank

Unknown ANZSIC codes

There were 1,398 ICPs with ANZSIC code T994 "Don't know", an increase from 249 last audit and making up 0.45% of all active ICPs. This was due to a resource constraint during the COVID 19 Auckland lockdown. The report was not being reviewed. The process has been re-established and the volume of ICPs has reduced to 260 on the report that I reviewed during the audit. A sample of 30 ICPs were checked, and all had been updated with an appropriate ANZSIC code after the report was run.

Residential ANZSIC codes for ICPs with category two or higher

The AC020 trader compliance report recorded 126 category 2 ICPs with residential ANZSIC codes, and one ICP with meter category three with a residential ANZSIC code. This process was paused as detailed above. I checked the category three ICP and a sample of 20 category two ICPs and found four were confirmed as correct. The remaining 17 ICPs have since been corrected to an appropriate code, including the one category three ICP 1002125124LCA15.

Sample review

A diverse sample of 80 active ICPs were checked to confirm the validity of ANZSIC codes, including ICPs assigned to each of the ten most frequently used codes. This identified five incorrect ANZSIC codes representing an 6% error rate. All have been corrected.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.6 With: 9 (1(k) of Schedule 11.1 From: 05-Jan-21 To: 18-Nov-21	1,398 ICPs with T994 ANZSIC codes. 17 of a sample of 21 ICPs (from a possible 125) meter category code 2/3 were incorrectly recorded as residential. Five of a sample for 80 active ICPs (6% error rate) with the incorrect ANZSIC code. 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. This has no direct impact on reconciliation therefore the audit risk rating is low. There is an impact on reporting by the Electricity Authority.

Actions taken to resolve the issue	Completion date	Remedial action status
1,398 ICPs with T994 ANZSIC codes. During the Covid-19 lockdown, our ANZSIC code reporting was deprioritised to ensure more urgent/impactful work was sufficiently covered. We have worked to bring this back down to "Pre-lockdown" numbers and will continue to review our weekly reporting. **17 of a sample of 21 ICPs (from a possible 125) meter category code 2/3 were incorrectly recorded as residential.** The ANZSIC codes have been changed for 16 ICPs, 1 has switched out. **Five of a sample for 80 active ICPs (6% error rate) with the incorrect ANZSIC code.** This is an improvement on last year and we believe we have effective processes and checking in place to mitigate errors in most cases.	Jan 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

17 of a sample of 21 ICPs (from a possible 125) meter category code 2/3 were incorrectly recorded as residential. Mid 2021 we implemented checks of the Audit Compliance Report into our BAU processes. The AC020Trader12 was intended to be monitored to identify these instances. Unfortunately, due to staff resources and the Covid-19 lockdowns, this was not monitored as intended. The actioning of this report will be added into weekly updates to ensure the report is now actively monitored. We will also be training additional staff on this to ensure we have adequate cover for this task.	Mar 22	

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

Code reference

Clause 9(1)(f) of Schedule 11.1

Code related audit information

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

the code ENG - if the load is profiled through an engineering profile in accordance with profile class 2.1 (clause 9(1)(f)(i)); or

the daily average kWh of unmetered load at the ICP - in all other cases (clause 9(1)(f)(ii)).

Audit observation

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

- unmetered load is identified by the distributor, and none is recorded by Mercury,
- unmetered load is identified by Mercury, and none is recorded by the distributor,
- unmetered load is indicated but the unmetered daily kWh is zero or blank, and
- Mercury' unmetered load figure does not match with the distributor's figure (where it is possible to calculate this if the distributor is using the recommended format) and the variance is greater than 0.1 kWh per day (0.1 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 0.1 kWh per day).

Audit commentary

Management of unmetered load information

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

Unmetered daily kWhs are recorded in two locations in SAP; the retailer time slice table (which reflects the SAP value) and the installation facts (which reflects the registry value). Every two months reports are run in SAS to identify discrepancies between the registry and retailer time slice table, and the registry and installation facts. I reviewed the report and note that it hasn't been run since May 2021.

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". The comparison is run only against those records that detail wattage and not kilowatt figures.

Active ICPs with no metering or unmetered load recorded by Mercury

The audit compliance report recorded 70 "active" ICPs where the metering category was 9 or blank, indicating that no meters were present, and the unmetered flag was set to no. All were checked:

Count	Comment
32	MEP accepted nomination, awaiting meter asset data.
16	These are DUML ICPs and no MEP is expected.
17	No MEP nomination was raised: • 11 of these were due to timing and have since had an MEP nominated and meters added, • two ICPs have since been disconnected and moved to an inactive status, • two ICPs (0000513428NR4C0 and 0000027221WE41D) are active but have no metering or unmetered load recorded. This is recorded as non-compliance below and in **sections 2.1** and **2.11,** and • two ICPs (0128950536LC139 and 0042710550PCB39) are recorded on the registry as "active" but are disconnected, this is recorded as non-compliance in **sections 2.1** and **3.8**.
5	Metering details were populated on the registry after the report was run.
70	

Comparison to distributor unmetered load value

The AC020 report recorded 16 DUML ICPs with unmetered load recorded as "N" and the daily kWh as blank and distributed unmetered load recorded by the distributor. Mercury confirmed the ICPs are HHR DUML, and the registry could not be updated to "Y" for these because the settlement type is HHR.

The AC020 report recorded 19 ICPs with the unmetered flag set to "Y" and a blank daily unmetered kWh. Nine were DUML ICPs and ten were residual load (SB) ICPs and this is compliant.

The AC020 report recorded 61 ICPs which had a difference between the trader daily unmetered daily kWh and a recalculation based on the distributor's values of more than ±0.1 kWh per day. Four were DUML ICPs and compliant, and the other 57 ICPs were checked:

- Mercury's unmetered daily kWh and description were confirmed to be correct for 54 ICPs,
- ICP 0000540450TE6E7 – the light value has been copied from the network, but these are under verandah fluorescent or LED tubes and are unlikely to be 2 watts as was detailed in the last audit, and
- ICP 0007301973NVCDF – the light value has been copied from the network, but these do not include any ballast; the daily kW value should be 3.24 kWh instead of 2.88 kWh which will be resulting in a very minor under submission of 131.40 kWh per annum.

The two ICPs with the incorrect daily kWh figure are recorded as non-compliance below and in **sections 2.1** and **12.7.**

Unmetered BTS

There are 24 unmetered BTS ICPs, all of which have been electrically connected for over a year. All were checked and found to be correct. Three have since moved to be permanent supplies.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.7 With: Clause 9(1)(f) of Schedule 11.1 From: 05-Jan-21 To: 18-Nov-21	Two ICPs with the incorrect daily kWh figure resulting in a very minor submission inaccuracy. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as the registry discrepancy process will identify most errors, but the report needs to be run regularly. The audit risk rating is low due to the very minor impact on reconciliation accuracy.

Actions taken to resolve the issue	Completion date	Remedial action status
ICP 0000540450TE6E7 - We have been unsuccessful in obtaining any useful information on the unmetered load from the network or previous retailer. We have also reached out to the customer and will make any necessary changes if the customer is able to confirm the unmetered load details. ICP 0007301973NVCDF – We will be updating our daily kWh figure in the registry and SAP to ensure for accurate submission.	Apr 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We have a monthly unmetered discrepancy report which was not run for some months due to Covid-19 lockdowns and staff resources. We will consider part automation of this report to reduce manual effort and time. We have also added this to our weekly reporting checks so that monitoring of unmetered discrepancies is more visible.	Jun 22	

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

Code reference

Clause 17 Schedule 11.1

Code related audit information

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

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

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

- *the ICP has only 1 customer, embedded generator, or direct purchaser (clause 17(2)(a))*
- *the electricity consumed is quantified by a metering installation or a method of calculation approved by the Authority (clause 17(2)(b)).*

Audit observation

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

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

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

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

Audit commentary

The 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.

New connections

As detailed in **section 2.9** the new connection process has been automated using the B2B tool during the audit period. When the AFS job is created the master data process claims the ICP in the registry and moves it to the "inactive - new connection in progress" status. When the job is issued to the contractor the MEP nomination is sent. This process did not work as expected when it was deployed if the ICP was still at the "new" status on the registry. In these instances when the job was closed out the ICP was moved to the "inactive - new connection in progress" status when it should have been moved to "active". The process has been fixed so that the correct status is applied. A material change audit should have been undertaken in relation to this system change. This is recorded as non-compliance in **section 1.11**.

The AC020 report identified 31 ICPs with an initial electrical connection date populated which had not been made active. 11 were timing differences, and the status was updated to active prior to the audit. The remaining 20 ICPs were examined and found all but two have been made "active". The 18 ICPs updated late were:

- 17 ICPs were due to the delay in the AFS being closed out as the new B2B process will not complete until the MEP has closed the service request; there is reporting in place to monitor outstanding jobs, but this was not always able to be monitored during the audit period resulting in late updates to the registry, and

- the process wasn't completed correctly for ICP 1002145001LC153, so this was updated to "active" manually 30 November 2021 for 3 August 2021.

The two ICPs that have not been made active were checked and found:

- ICP 0000050778HBFD6 has since been "decommissioned - set up in error" and the initial electrical connection date removed, and
- ICP 1000602117PCC8B is still a pending new connection and Mercury have just issued the metering job, but the distributor has recorded an initial electrical connection date of 6 October 2021 and the high-risk database records the livening date as 5 May 2021, so Mercury is investigating this.

Active dates for new connections were compared to the distributor's initial electrical connection date, and MEP's certification date using the AC020 report. The AC020 report identified 1,147 ICPs with date discrepancies. For 33 ICPs the active date and initial electrical connection date was consistent and the ICP was unmetered. The other 1,114 exceptions were checked:

Exception type	Quantity	Commentary
IECD = active date and MCD ≠ active date	3	All were confirmed to be correct
IECD ≠ active date and MCD = active date	19	A sample of five were checked and found that the first active date was correct, and the initial electrical connection date was incorrect.
IECD = active date and no MCD	35	A sample of five were checked and all were confirmed to be correct. The metering is still to be loaded to the registry for two of the sample and one was an unmetered new connection.
IECD ≠ active date and no MCD	2	All were checked and found ICP 0007199817RN1BF is correct. ICP 1002143916UN0E9 was recorded as electrically connected on 29/09/21 but was corrected to 29/07/21 on 30/11/21 to align with the initial electrical connection date and the meter certification. This was identified via the BAU registry discrepancy processes.
IECD = active date and unmetered	33	A sample of five were checked and found all were correct.
No IECD and MCD = active date	975	A sample of five were checked and found all were correct.
No IECD and no MCD	72	A sample of five were checked and two were correct. The incorrect first active dates were recorded for three ICPs (0007201529RN6A4, 1002137904UN6F8 and 1002137734LCD1F) as the ICPs were incorrectly made active from the claim date and wasn't electrically connected until later. These have been corrected.
No IECD and unmetered BTS	8	A sample of five were checked and four were correct. ICP 0007202684RN003 was made active from 25/06/21 but the network and the high-risk database have recorded the electrical connection date as

Exception type	Quantity	Commentary
		16/07/21. This ICP has since been decommissioned. This is recorded as non-compliance below and in **sections 2.1** and **3.8**.
Total	1,147	

I also checked a further 30 new connections for accuracy – from late updates sample and those not certified within five business days, excluding those checked under accuracy and found:

- ICP 1099581350CN318 was made active for 21/06/21 due to human error but was not electrically connected until 29/09/21. This is being corrected.
- ICP 1002139114LCE8C was made active for 07/04/21 due to human error but was not electrically connected until 29/09/21. This is being corrected.
- ICP 1002147325UN75B was made active for 27/09/21 due to human error but was not electrically connected until 26/10/21. This is being corrected.

Reconnections

A sample of 20 reconnections were checked, and I confirmed that:

- the status and date had been applied correctly for 17 ICPs.
- three ICP (0000310248TU2EE, 0000671438UND75, 0000005362UN5B0) updates were updated to active for dates in 2014 incorrectly due to an SAP bug ; it was thought to have been resolved in September 2020, but the last audit identified two examples post September 2020 and it is still evident in this audit - another IT ticket has been logged to investigate and resolve why this is happening.

I found no evidence of the issue raised in the last audit where SAP had applied the active date from the date following the disconnection date rather than from the date consumption occurred.

As detailed in **sections 2.9** and **2.11**, two ICPs (0128950536LC139 and 0042710550PCB39) are recorded on the registry as "active" but have been disconnected. This is recorded as non-compliance in **sections 2.1** and **3.8**.

As detailed in **section 2.11**:

- three ICPs of a sample of 27 ICPs with potential late meter certification had been made active for the incorrect date, and
- five ICPs (0000005362UN5B0, 0002011840CNC22, 0005327660RNC40, 0005770475RNF0E and 0005932998RND24) were incorrectly updated to active by SAP as has been identified in the last two audits; it was thought to have been resolved in September 2020, but the last audit identified two examples post September 2020 and it is still evident in this audit - another IT ticket has been logged to investigate and resolve why this is happening but the incorrect status is recorded as non-compliance below and in **section 2.11**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.8 With: Clause 17 Schedule 11.1 From: 01-Jan-21 To: 21-Nov-21	Two ICPs of a sample of ten ICPs with no MEP nomination or metering recorded on the registry at the incorrect status. Three ICPs of a sample of 27 ICPs with potential late meter certification had been made "active" for the incorrect date. Four (0007201529RN6A4, 1002137904UN6F8, 1002137734LCD1F and 0007202684RN003) of a sample of 30 new connections with date discrepancies made "active" for the incorrect date. Eight of a sample of 40 ICPs (20 reconnections and 20 reconnected with expired meter certification) updates were incorrectly updated to "active". Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate as they will mitigate risk most of the time. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status

Two ICPs of a sample of ten ICPs with no MEP nomination or metering recorded on the registry at the incorrect status. 0128950536LC139 & 0042710550PCB39 the statuses have been corrected for these two ICPs. **Three ICPs of a sample of 27 ICPs with potential late meter certification had been made "active" for the incorrect date.** See comments in section 3.5. **Four of a sample of 30 new connections with date discrepancies made "active" for the incorrect date.** See comments in section 3.5. **Eight of a sample of 40 ICPs (20 reconnections and 20 reconnected with expired meter certification) updates were incorrectly updated to "active".** 0000005362UN5B0, 0000310248TU2EE, 0000671438UND75, 0000005362UN5B0 – Incorrect status updates by system. 0002011840CNC22 – Incorrect status update due to human error. 0005327660RNC40, 0005770475RNF0E, 0005932998RND24 - Incorrect status update due to human error during bulk switch to MEEN.	Jan 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Mid 2021 we implemented checks of the Audit Compliance Report into our BAU processes. This was to be used to identify extremely late updates so these could be investigated, and any corrections made in a timelier manner. This would have assisted in identifying the backdated updates caused by system issues as well as the ICPs with no MEP or metering at active status. Unfortunately, due to staff resources and the Covid-19 lockdowns, this was not monitored as intended. The actioning of this report will be added into weekly updates to ensure the report is now actively monitored. We will also be training additional staff on this to ensure we have adequate cover for this task.	Ongoing	

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

Code reference

Clause 19 Schedule 11.1

Code related audit information

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

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

Audit observation

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

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

The timeliness of updates to inactive statuses is detailed in **section 3.3**.

Audit commentary

The status of "inactive" is only used once a Mercury approved contractor has confirmed that the ICP has been disconnected.

Inactive - new connection in progress

Eight ICPs have been at "new connection in progress" for more than two years. These were examined and found four were still required. The remaining four are no longer required. The "new connection in progress" status needs to be reversed to return these to "ready" so the distributor can decommission these as "set up in error". This is recorded as non-compliance. I recommend that this step is reinforced with the new connections team.

Description	Recommendation	Audited party comment	Remedial action
Management of "inactive" status	Remind the new connections team that the "new connection in progress" status must be reversed if an ICP is no longer required.	The team have been made aware of the requirement to update the status. Our training documents will be updated to reflect this.	Identified

I identified one switch (ICP 0000048279WE539) made during the audit period where the ICP was switched while still in the "inactive - new connection in progress" status. Therefore, the first active date was the gaining trader's date resulting in the consumption from 2 June 2021 to 29 July 2021 not being reconciled by Mercury. This has been corrected as a result of the audit. I recommend in **section 3.5**, that a check be put in place that does not allow a switch out to for ICPs in this status. This is recorded as non-compliance below and in **sections 2.1, 3.5** and **12.7**.

Other inactive statuses

ICP 0048240328PCC75 is now supplied by Powerco's "Basepower" system, which is a solar installation with batteries and a diesel backup generator. It is not connected to the network and is recorded as inactive - reconciled elsewhere. In the last audit, it was noted that the ICP should be recorded as inactive - ready for decommissioning, as advised by Powerco on 28 September 2020. The customer has since called and requested that the ICP be held, and it has been moved to "inactive - vacant".

A sample of 40 updates to inactive statuses other than new connection in progress were checked and found all had the correct status and event date applied except for ICP 1000574614PCC84. This was correctly updated to "active" when the switch completed on 12 July 2021. SAP sent another status update returning the ICP to "inactive" on 13 July 2021. The ICP subsequently switched away on 8 October 2021 and was "inactive" for the period of supply with Mercury resulting in 54kWh of under submission. This is being corrected. This is recorded as non-compliance below and in **sections 2.1** and **12.7**.

The AC020 report did not record any ICPs with the "Electrically disconnected remotely by AMI meter" status reason code applied where AMI metering was not recorded in the registry.

Consumption while inactive

Consumption while inactive is identified by the data analysts. A report is run that identifies all ICPs with an "inactive" status and consumption. Currently there 270 ICPs (22,587 kWh) an increase from 84 ICPs (10,584 kWh) during the last audit. 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.

This report only looks for consumption between actual readings held in the SAP system and assumes that there is an actual read as at the date of disconnection. As the process to remotely reconnect an ICP is manual the application of an actual read to denote the status change is also manual and in a number of cases the disconnection read is applied as an estimate and a reconnection read is not applied if there is already an estimated read present in SAP. The use of estimate reads to denote the beginning of the disconnection period means the reporting cannot detect where consumption is detected on inactive ICP's until two scheduled actual reads are recorded in SAP. For short term periods of disconnection, the absence of actual reads or permanent estimate reads within SAP means not all ICPs are being included in this report.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.9 With: Clause 19 Schedule 11.1 From: 05-Jan-21 To: 18-Nov-21	Some ICPs with incorrect inactive statuses not identified. Three ICPs no longer required at the "new connection in progress status". ICP 0000048279WE539 switched out at the "new connection in progress" status resulting in the consumption period with Mercury not being reconciled. 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 the reporting in place will mitigate risk most of the time. I have made one recommendation for improvement. The audit risk rating is low because a small number of ICPs were affected.

Actions taken to resolve the issue	Completion date	Remedial action status

Some ICPs with incorrect inactive statuses not identified. We will investigate what improvements can be made to our "consumption while active" reporting (including the possibility of using HHR data) to ensure all ICPs can be identified. We will also be recommencing our checking of the Audit Compliance Report which will assist in identifying incorrect status updates. **Three ICPs no longer required at the "new connection in progress status".** We will review these ICPs and take the necessary actions. **ICP 0000048279WE539 switched out at the "new connection in progress" status resulting in the consumption period with Mercury not being reconciled.** See comments in section 3.5.	Apr 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Three ICPs no longer required at the "new connection in progress status". We will ensure any longstanding ICPs at this status are followed up and any necessary action taken.	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 the process in place to manage and respond to such requests.

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

Audit commentary

Mercury has received requests for information on NHH ICPs at "new" or "ready" status for more than 24 months from some networks during the audit period. The ICPs on the requests are investigated to determine whether they are still required, and responses are provided back to the network.

No requests for information on HHR ICPs at "new" or "ready" have been received.

NHH new connections are tracked through field service order monitoring processes, and HHR review connections are monitored using the WIP sheet and account managers also track new connection progress.

I checked the number of ICPs at new and ready status:

Status	Nov 2021 count	Dec 2020 count
ICPs at ready status for more than 2 years	74	63
ICPs at new status for more than two years	6	3

I checked the ten oldest ICPs at "new" status and the ten oldest ICPs at "ready" status. Mercury has no job request for 12 of these and has requested details from the relevant networks. The remaining eight ICPs have been "decommissioned - set up in error" as part of the BAU process.

Audit outcome

Compliant

4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

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

Code reference

Clause 2 Schedule 11.3

Code related audit information

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

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

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

Audit observation

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

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.

Transfer switch type is applied where a customer is transferring between retailers at an address. This information is collected as part of the customer application process.

Review of the event detail report found 7,328 transfer switch NTs. I matched the NTs to the meter category recorded on the registry list for the 6,896 ICPs where this information was available and found none had a metering category of three or above.

The five NT files checked were sent within two business days of pre-conditions being cleared.

Audit outcome

Compliant

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

Code reference

Clauses 3 and 4 Schedule 11.3

Code related audit information

Within three business days after receiving notice of a switch from the registry manager, the losing trader must establish a proposed event date. The event date must be no more than 10 business days after the

date of receipt of such notification, and in any 12-month period, at least 50% of the event dates must be no more than five business days after the date of notification. The losing trader must then:

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

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

Audit observation

The event detail report was reviewed to:

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

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

Audit commentary

AN timeliness

Generation of AN files is automated in SAP. The automatic generation of the AN will fail if another retailer requests a vacant ICP as transfer switch. In these instances, Mercury sends an email to make sure the other trader is aware that the ICP is vacant before proceeding with the switch.

The issue identified in the last audit where SAP would not allow the file to be released has been resolved.

The switch breach history report did not record any late AN files.

AN content

The switch breach report found that only 8.48% (105) of AN files had an event date within five business days and four AN files had an event date greater than ten days. This was due to a logic change that was made that automatically applied +8 days to the NT date for all AN files. The switches were completed for the correct date. This affected both transfer and switch moves. This has been corrected on 30 November 2021. I requested a switch breach report file from 1 December 2021 to 31 January 2022 to confirm that the fix has worked.

The switching process was examined in relation to MEEN as the "losing trader", and AN response codes were checked:

- 127 ANs had the AA (acknowledge and accept) code applied; 18 ICPs had the advanced metering flag set to yes, and the other 109 had AA correctly applied - I checked a typical sample of five ICPs and found three were incorrectly sent with AA code due to a logic issue (Mercury have raised a ticket with IT to resolve this) while ICP 0000013495EA269 was incorrect due to human error and ICP 0000069889TR1D0 was correct,
- 1,020 ANs had the AD (advanced metering) code applied; eight did not have the AMI flag set to yes, and the other 1,012 had AD correctly applied – I checked a typical sample of five and confirmed them to be correct as the AMI meter was retrospectively added to the registry,
- 89 ANs had the CO (Contracted customer) code applied; a typical sample of five checked found all were correct, and
- two ANs had the PD (premises electrically disconnected) code correctly applied.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.2 With: Clauses 3 & 4 of schedule 11.3 From: 01-Jan-21 To: 19-Nov-21	Less than 50% of ANs had proposed event dates within five business days of NT receipt. Four ANs had proposed event dates more than ten business days after NT receipt. Four of a sample of 17 AN files checked contained incorrect response codes of AA. Potential impact: None Actual impact: None Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls moderate as logic changes are being deployed without sufficient testing to identify the impact of such changes and subsequently causing non-compliance. I have recorded the audit risk rating as low as the switches were completed for the correct date.

Actions taken to resolve the issue	Completion date	Remedial action status

Less than 50% of ANs had proposed event dates within five business days of NT receipt. We implemented a fix on 30/11/21 to resolve this issue. **Four ANs had proposed event dates more than ten business days after NT receipt.** The incorrect AN dates were due to incorrect logic. A fix was implemented in Nov 21 to resolve this issue. ICP 0000013495EA269 was withdrawn and NT re-requested after the system fix and the subsequent AN proposed event date was correct. **Four of a sample of 17 AN files checked contained incorrect response codes of AA.** 0000013495EA269 was due to human error. Our switching team will receive retraining on AN codes and process documentation will be updated to ensure for correct processing when manual processing is required. 0000035162WE2DA, 0000047820WE00A, 0000923391TU89C The incorrect AN codes were used due to incorrect system logic. We have requested our ICT team to investigate the cause and work on a fix.	30/11/21	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will be focussing on reducing the risk of human error by providing additional training and updating process documentation. We will ensure extra scrutiny is placed on testing before any minor fixes are implemented to ensure they address and resolve the issue completely.	Ongoing	

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

Code reference

Clause 5 Schedule 11.3

Code related audit information

If the losing trader provides information to the registry manager in accordance with clause 3(a) of Schedule 11.3 with the required information, no later than 5 business days after the event date, the losing trader must complete the switch by:

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

Audit observation

The event detail report 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 records. The content checked included:

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

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

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

Audit commentary

CS timeliness

Switch timeliness is managed using the switch breach report. There are two reports produced a day at 6.15am and 8.15am. The later report was thought to be duplicate of the earlier report, but it was found that the T2, CS and E2 breaches are only reported in the later report, so these were missed for a time. Both reports are reviewed daily.

As reported in the last audit, there is still the occasional instance (one every 2-3 months) where triggered CS files are not sent to the registry by SAP. This is checked daily, and any instances are manually processed on the registry.

The switch breach history report recorded:

- one CS breach, where the CS was issued more than five business days after the transfer date; the file was generated the day after NT receipt with the gaining trader's requested event date, which was backdated,
- one E2 breach where the CS actual transfer date was more than ten business days after NT receipt; the CS was issued with the gaining trader's requested event date, which was 19 calendar days after the NT was issued, and
- three WR (switch completion after withdrawal rejection) breaches, because the CS was issued more than two business days after receipt of an AW rejection.

CS content

Mercury's calculation of the estimated daily kWh figure is calculated from last actual or validated customer read from up to six months prior and the last read. This will comply for the majority of cases but if the last actual read is more than six months prior then the calculation will be incorrect as it is not considered. This is recorded as non-compliance below.

Analysis of estimated daily kWh on the event detail report identified:

Average daily kWh	Count of transfer CS files	Comment
Negative	-	
Zero	24	The typical sample of five checked confirmed these are correct.
More than 200 kWh	1	ICP 0006800920CAA6B was not correctly calculated.

The incorrect average daily consumption figure is being investigated.

I checked for discrepancies between the last actual read date and switch event reading type for transfer switch CS files:

- 31 transfer switches had a last actual read date the day before the event date and an estimated switch event read type - I checked a sample of five ICPs and found all were created manually and the read and read type were correct but the last read date is recorded incorrectly which is recorded as non-compliance below,
- no transfer switches had a last actual read date more than one day before the event date and an actual switch event read type, and
- two transfer switches had last actual read dates after the event date; the logic looks for the last read date from the CS file creation date rather than the period of supply which is recorded as non-compliance.

I checked a sample of a further five CS files and found that all details were correct exception for:

- the average daily consumptions due to the change of logic, and
- ICP 0000965820TE395 (event date 22 September 2021), was sent with the incorrect last read date of 1 September 2021 and it was not clear where the estimated read was derived from; Mercury is investigating this.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.3 With: Clause 5 of schedule 11.3 From: 01-Jan-21 To: 19-Nov-21	One CS breach. One E2 breach. Three WR breaches. Average daily consumption calculation will be incorrect if the last read is more than six months prior to the end date. One ICP with an average daily consumption figure greater than 200 kWh calculated incorrectly. 31 CS files sent with the incorrect last read date due to human error. Two CS files were sent with a last read date after the period of supply. One ICP was sent with the incorrect last read date 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	I have rated the controls moderate as logic changes are being deployed without sufficient testing to identify the impact of such changes and subsequently causing non-compliance. The audit risk rating is assessed to be low, the gaining trader requested dates were applied for the CS and E2 breaches.

Actions taken to resolve the issue	Completion date	Remedial action status
One CS breach. **One E2 breach.** **31 CS files sent with the incorrect last read date due to human error.** **One ICP was sent with the incorrect last read date** The above breaches are all due to human error. We will be providing further training to staff and updating all process documentation to ensure there is sufficient guidance for manual processing to reduce instances of human error. **Three WR breaches.** These 19 WR breaches were delayed due to appearing in our second daily breach report which was not actively monitored. The team is now reviewing both reports daily to ensure for timely processing. **Average daily consumption calculation will be incorrect if the last read is more than six months prior to the end date** **One ICP with an average daily consumption figure greater than 200 kWh calculated incorrectly** Our ICT team are currently looking into the incorrect ADC calculations. We will also be reviewing our ADC calculation logic to ensure we are compliant in all cases. **Two CS files were sent with a last read date after the period of supply.** We will raise this issue with our ICT team to investigate and correct our logic to ensure only reads during our period of supply are considered when switching.	Apr 22 Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will be focussing on reducing the risk of human error by providing additional training and updating process documentation. We will ensure extra scrutiny is placed on testing before any minor fixes are implemented to ensure they address and resolve the issue completely.	Ongoing	

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

Code reference

Clause 6(1) and 6A Schedule 11.3

Code related audit information

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

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

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

- *the losing trader can choose not to accept the reading, however, must advise the gaining trader no later than 5 business days after receiving the switch event meter reading from the gaining trader (clause 6A(a)); or*
- *if the losing trader notifies its acceptance or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader (clause 6A(b)).*

Audit observation

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

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

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

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

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 it is accepted. This task is carried out by the Contact Centre and readings management teams.

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.

Mercury issued 52 RR files for transfer switches. 39 were accepted and 13 were rejected. For the sample checked there was a genuine reason for Mercury's RRs, and the reads recorded in Mercury's system reflected the outcome of the RR process. Four (0000147998UN185, 0000191791UN04E,

0000209730UN264 and 0000036175UNB1C) of the 12 RR files sent were not supported by two actual reads. Three were rejected by the losing trader and one was accepted. I recommend that the requirement for read requests to be supported by two actual reads be reinforced with the teams who raise these. This is recorded as non-compliance.

Description	Recommendation	Audited party comment	Remedial action
Read Requests	Remind teams who raise the RR requests that these must be supported with two actual reads.	All teams who are involved in the RR process have been reminded of the requirements to support all requests with 2 actual readings. We will look into how this step was missed in these instances and implement any process checks or changes as necessary.	Identified

The switch breach report recorded three RR breaches (RR delivery breaches for RR files issued more than four calendar months after the CS). These were checked and found that all were delayed due to the time taken to gain two actual reads.

AC

Mercury issued two AC files for transfer switches. One was accepted and one was rejected. The rejected file was rejected for valid reasons.

The switch breach history report did not record any late AC files.

CS files with estimated readings where no RR is issued

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.4 With: Clauses 6(1) and 6A Schedule 11.3 From: 23-Jul-21 To: 03-Oct-21	Four of the 12 ICPs sampled were not supported by two actual reads. Three RR breaches. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate, and I have recommended that the requirement to have two actual reads to support RR requests is reinforced with the teams who raise them. The audit risk rating is low because the number of RRs issued is small. .

Actions taken to resolve the issue	Completion date	Remedial action status

Four of the 12 ICPs sampled were not supported by two actual reads. All teams who are involved in the RR process have been reminded of the requirements to support all requests with 2 actual readings. We will look into how this step was missed in these instances and implement any process checks or changes as necessary. **Three RR breaches.** We believe our current processes are effective in most cases to mitigate RR breaches. For these 3 cases (only 2 ICPs as two of the RR breaches relate to the same ICP), it took some time to obtain 2 actual reads. The RR process was started as soon as practicable after obtaining the reads.	Jun22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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

Code reference

Clause 6(2) and (3) Schedule 11.3

Code related audit information

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

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

Audit observation

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

Audit commentary

These RR requests are processed in the same way as those received for greater than 200 kWh. Each request is evaluated and validated against the ICP information. If the request is within validation requirements these are accepted.

Mercury did not issue any read change requests where clause 6(2) and (3) of schedule 11.3 applied.

Two RR files were issued under clause 6(2) and (3) of schedule 11.3, and both were accepted by Mercury.

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 typical sample of 15 ICPs were checked to confirm that these were notified to the registry within two business days, and a sample of NTs were checked to confirm that the correct switch type was selected.

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.

Switch move is applied where a new customer is moving into an address. This information is collected as part of the customer application process.

Review of the event detail report found 28,646 switch move NTs. I matched the NTs to the meter category recorded on the registry list for the 24,946 ICPs where this information was present and found none had a metering category of three or above.

The 15 NT files checked were sent within two business days of pre-conditions being cleared.

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

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

Audit observation

The event detail report was reviewed to:

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

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

Audit commentary

AN file content

The switching process was examined in relation to MEEN as the "losing trader", and the AN response codes were checked:

- 302 ANs had the AA (acknowledge and accept) code applied; 240 ICPs had the advanced metering flag set to yes, and the other 62 had AA correctly applied - I checked a typical sample of five ICPs and found four were incorrectly sent with AA code due to a logic issue (Mercury have raised a ticket with IT to resolve this) and ICP 0287831434LCCA4 was correct,

- 288 ANs had the AD (advanced metering) code applied; two did not have the AMI flag set to yes, and the other 1,012 had AD correctly applied - these were checked and confirmed to be correct as the AMI meter was retrospectively added to the registry,
- two unmetered ICPs correctly had MU (Unmetered supply) correctly applied, and
- 1,400 ANs had the OC (Occupied premises) code applied; a typical sample of ten checked found all were correct.

The event detail report was reviewed for all 1,992 switch move ANs to assess compliance with the setting of event dates requirements:

- 1,9991 (99.84%) had proposed event dates within ten business days of the NT receipt date; one AN had an event date more than ten business days after the NT receipt date which was due to the logic issue detailed in **section 4.2,** but the switch was completed for the correct date, and
- 22 ANs has a proposed event date before the gaining trader's requested date; these were due to the logic issue detailed in **section 4.2** but were completed for the correct date.

AN timeliness

Generation of AN files is automated in SAP. The automatic generation of the AN will fail if another retailer requests a vacant ICP as transfer switch. In these instances, Mercury sends an email to make sure the other trader is aware that the ICP is vacant before proceeding with the switch.

The issue identified in the last audit where SAP would not allow the file to be released has been resolved.

The switch breach history report did not record any late CS AN files for switch move.

CS timeliness

As recorded in **section 4.3**, switch timeliness is managed using the switch breach report. There are two reports produced a day at 6.15am and 8.15am. The later report was thought to be duplicate of the earlier report, but it was found that the CS and E2 breaches are only reported in the later report, so these were missed for a time. Both reports are reviewed daily.

The switch breach history report recorded:

- 19 WR (switch completion after withdrawal rejection) breaches, because the CS was issued more than two business days after receipt of an AW rejection,
- Seven E2 (CS event date is either earlier than the gaining traders requested event date or more than ten business days after the NT receipt date); one was not genuine while three (0000035887UN067, 0040956800WR1B9 and 1001257908LCAD5) were due to the second breach report not being managed causing the CS file to be sent late as discussed in **section 4.3**, and the remaining three (0000031856EAFC7, 0000106970UN31E and 0207465045LC2D0) were sent late due to multiple withdrawals and were not sent within two business days of the withdrawal being resolved,
- two ET breaches where the expected transfer date is more than ten business days after NT arrival or before the proposed event date, neither were genuine as the original switch was withdrawn and the reporting has matched the CS file to the earlier withdrawn switch, and
- 37 T2 breaches where the CS file was delivered late - I checked the ten latest files and found this was due to the second breach report not being managed causing the CS file to be sent late as discussed in **section 4.3.**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.8 With: Clause 10 of schedule 11.3 From: 01-Jan-21 To: 19-Nov-21	Four of a sample of 19 AN files checked contained incorrect response codes of AA. 22 ANs has a proposed event date before the gaining trader's requested date. One AN file had proposed event dates more than ten business days after NT receipt. 19 WR breaches. Six E2 breaches. 37 T2 breaches. 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	I have rated the controls moderate as logic changes are being deployed without sufficient testing to identify the impact of such changes and subsequently causing non-compliance. The audit risk rating is assessed to be low, the gaining trader requested dates were applied correctly in the CS file and the reads were correct. .

Actions taken to resolve the issue	Completion date	Remedial action status

Four of a sample of 19 AN files checked contained incorrect response codes of AA. 1 example was due to human error. The team have been reminded of the correct use of AN response codes and process documentation will be updated as necessary to assist when manual file processing is required. The remaining 3 are with our ICT team for investigation. Once the cause has been identified, we will test thoroughly to ensure any fix implemented will address the issue completely. **22 ANs has a proposed event date before the gaining trader's requested date.** **One AN file had proposed event dates more than ten business days after NT receipt.** The incorrect proposed event dates were due to a logic issue which has since been fixed. **19 WR breaches.** These 19 WR breaches were delayed due to appearing in our second daily breach report which was not actively monitored. The team is now reviewing both reports daily to ensure for timely processing. **Six E2 breaches.** Three of these E2 breaches were missed due to appearing in our second daily breach report which was not actively monitored. The team is now reviewing both reports daily to ensure for timely processing. The other 3 were delayed due to withdrawal attempts. **37 T2 breaches.** These 37 T2 breaches were delayed due to appearing in our second daily breach report which was not actively monitored. The team is now reviewing both reports daily to ensure for timely processing.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will be focussing on reducing the risk of human error by providing additional training and updating process documentation. We will ensure extra scrutiny is placed on testing before any minor fixes are implemented to ensure they address and resolve the issue completely.	Ongoing	

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

Code reference

Clause 10(2) Schedule 11.3

Code related audit information

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

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

Audit observation

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

Audit commentary

Switches were completed as required by this clause. I checked the switches with non-compliant switch move event dates identified in **section 4.8** and found they were withdrawn or completed effective from the NT proposed event date.

Audit outcome

Compliant

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

Code reference

Clause 11 Schedule 11.3

Code related audit information

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

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

Audit observation

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

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

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

Audit commentary

Mercury's calculation of the estimated daily kWh figure is calculated from last actual or validated customer read from up to six months prior and the last read. This will comply for the majority of cases but if the last actual read is more than six months prior then the calculation will be incorrect as it is not considered. This is recorded as non-compliance below. This is recorded as non-compliance below. Analysis of estimated daily kWh on the event detail report identified:

Average daily kWh	Count of switch move CS files	Comment
Negative	-	-
Zero	80	The typical sample of five checked confirmed these are correct.
More than 200 kWh	2	ICPs 0000005629UNCC4 and 0344527484LC235 were not calculated correctly.

The incorrect average daily consumption figures are being investigated.

I checked for discrepancies between the last actual read date and switch event reading type for switch move CS files:

- eight switch moves had a last actual read date the day before the event date and an estimated switch event read type - I checked a sample of five ICPs and found that all were due to automation issues where the incorrect last read date and read type was recorded for four ICPs, and for ICP 1000596369PCDBA, switch out occurred at the same time as a meter change so the last read date was correct but the read was estimated from the removed meter (as detailed in **section 4.3**, Mercury has raised an IT ticket to investigate the logic issues),
- 26 switch moves had a last actual read date more than one day before the event date and an actual switch event read type - I checked a sample of ten ICPs and found all had the incorrect read type of "A" and should have been sent as "E" however the correct read was sent in all instances and this relates to the logic issues discussed above and in **section 4.3**, and
- 35 switch moves had last actual read dates after the event date - I checked a sample of five ICPs and found the same issue discussed in **section 4.3**, where the logic looks for the last read date from the CS file creation date rather than the period of supply.

I checked a sample of a further five CS files and found that all details were correct except for the average daily consumptions due to the change of logic.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 11 of schedule 11.3 From: 01-Jan-21 To: 19-Nov-21	Average daily consumption calculation will be incorrect if the last read is more than six months prior to the end date. Two ICPs with an average daily consumption figure greater than 200kWh per day calculated incorrectly. Eight files sent with an incorrect last read date and read type of "E". ICP 1000596369PCDBA was sent with the incorrect last read. Ten files sampled of a possible 26 CS files were sent with a last read labelled incorrectly as an actual. All five files sampled of a possible 35 CS files were sent with a last read date after the period of supply. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have rated the controls moderate as logic changes are being deployed without sufficient testing to identify the impact of such changes and subsequently causing non-compliance. The audit risk rating is assessed to be low, the gaining trader requested dates were applied for the CS and E2 breaches. .

Actions taken to resolve the issue	Completion date	Remedial action status

Average daily consumption calculation will be incorrect if the last read is more than six months prior to the end date. **Two ICPs with an average daily consumption figure greater than 200kWh per day calculated incorrectly.** Our ICT team are currently looking into the incorrect ADC calculations. We will also be reviewing our ADC calculation logic to ensure we are compliant in all cases. **ICP 1000596369PCDBA was sent with the incorrect last read.** The switch for this ICPs was withdrawn and switch out reads have been reversed there no impact to the market or other participants. We will investigate this further to determine why the incorrect read was used and will work with ICT to implement any required fixes. • **Eight files sent with an incorrect last read date and read type of "E".** • **Ten files sampled of a possible 26 CS files were sent with a last read labelled incorrectly as an actual.** • **All five files sampled of a possible 35 CS files were sent with a last read date after the period of supply.** These issues will be raised with our ICT team to investigate. We will work with them to implement any required fixes.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
For all above issues, we will be working with our ICT team to investigate any implement any required fixes. We will ensure thorough testing is conducted to ensure all known issues are resolved.	Dec 22	

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

Code reference

Clause 12 Schedule 11.3

Code related audit information

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

- *if the switch meter reading established by the gaining trader differs by less than 200 kWh from that provided by the losing trader, both traders must use the switch event meter reading provided by the gaining trader (clause 12(2)(a)); or*
- *if the switch event meter reading provided by the losing trader differs by 200 kWh or more from a value established by the gaining trader, the gaining trader may dispute the switch meter reading. In this case, the gaining trader, within 4 calendar months of the date the registry*

manager gives the gaining trader written notice of having received information about the switch completion, must provide to the losing trader a changed validated meter reading or a permanent estimate supported by 2 validated meter readings and the losing trader must either (clause 12(2)(b) and clause 12(3)):

- *advise the gaining trader if it does not accept the switch event meter reading and the losing trader and the gaining trader must resolve the dispute in accordance with the dispute's procedure in clause 15.29 (with all necessary amendments) (clause 12(3)(a)); or*
- *if the losing trader notifies its acceptance or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader (clause 12(3)(b)).*

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

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

Audit observation

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

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

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

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

Audit commentary

RR and AC files are triggered in SAP by the switching team. As for AN and CS files, very occasionally files which have been triggered fail to be sent to the registry. The switching team checks the expected RR and AC files on the registry each afternoon to make sure they have been received, and if not, they are processed manually. Late ACs will be identified the following morning using Mercury's internal switch breach report.

RR

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 it is accepted. This task is carried out by the Contact Centre and readings management teams.

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.

Mercury issued 389 RR files for switch moves. 272 were accepted and 117 were rejected. For the sample checked there was a genuine reason for Mercury's RRs, and the reads recorded in Mercury's system reflected the outcome of the RR process. All were supported by two validated readings except

for ICP 0000050247WE4BB. This was rejected by the losing trader. I recommend in **section 4.4**, that this requirement is reinforced with the teams who raise the RRs. This is recorded as non-compliance below.

The switch breach report recorded 22 RR (RR delivery breaches for RR files issued more than four calendar months after the CS). I checked the ten latest and found that all were delayed due to the time to gain two actual reads.

AC

Mercury issued ten AC files for switch moves. Five were accepted and five were rejected. All rejections were checked and were rejected for valid reasons.

The switch breach history report did not record any late AC files.

CS files with estimated readings where no RR is issued

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.11 With: Clause 12 Schedule 11.3 From: 16-Aug-21 To: 28-Oct-21	One of the ten RRs sampled was not supported by two actual reads. 22 RR breaches. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate, and I have recommended in **section 4.4**, that the requirement to have two actual reads to support RR requests is reinforced with the teams who raise them. The audit risk rating is low because the number of RRs issued is small.
Actions taken to resolve the issue	**Completion date** / **Remedial action status**

One of the ten RRs sampled was not supported by two actual reads. Our current process is to raise RRs only if this is supported by two actual reads. ICP 0000050247WE4BB was due to human error and the switch team have been reminded of the requirements of supporting all RRs with two actual reads. **22 RR breaches.** We believe our current processes are effective in most cases to mitigate RR breaches. For these 22 cases (some are double ups for the same ICP), it took some time to obtain 2 actual reads. The RR process was started as soon as practicable after obtaining the reads.	Mar 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
One of the ten RRs sampled was not supported by two actual reads. All teams who are involved in the RR process have been reminded of the requirements to support all requests with 2 actual readings. We will look into how this step was missed in these instances and implement any process checks or changes as necessary.	Mar 22	

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

Code reference

Clause 14 Schedule 11.3

Code related audit information

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

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

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

A gaining trader must advise the registry manager of the switch and expected event date no later than 3 business days after the arrangement comes into effect.

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

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

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

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

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

Audit observation

The switch gain process was examined to determine when Mercury deem all conditions to be met. An extreme case sample of the ten most backdated HH NTs were checked to confirm whether they were notified to the registry within three business days.

HH NTs on the event detail report were matched to the metering information on the meter event details report to confirm whether the correct switch type was selected.

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.

343 HH NTs were issued by Mercury during the period reviewed. I matched the NTs to the meter category recorded on the registry list, and found all had meter category 3, 4 or 5.

I matched the NTs to the meter category recorded on the registry list for the 6,896 transfer switch ICPs and 24,946 switch move ICPs where this information was available and found none had a metering category of three or above.

The sample of 15 backdated NT files checked were sent within three business days of pre-conditions being cleared and the correct switch type was applied.

The switch breach history report recorded two PT breaches for invalid proposed event dates for HH switches. These were more than a month earlier than the NT was sent but less than 90 days and was requested in agreement with the losing trader therefore the breaches are not genuine.

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

An event detail report was reviewed to identify AN files issued by Mercury during the audit period, and a sample of ANs were reviewed to determine whether the codes had been correctly applied.

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

Audit commentary

The switching console manages HHR switch losses. The NT receipt starts the process. The HHR team pass this through to sales team to review and once cleared an AN or NW is sent as appropriate.

No HH NTs were received from other traders and no HH ANs were issued during the period reviewed.

The switch breach report did not record any late HH AN files.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 11.3

Code related audit information

The gaining trader must complete the switch no later than 3 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 5 business days after the metering installation is electrically disconnected or removed, advise the losing trader of the results and metering component numbers for each data channel in the metering installation.*

Audit observation

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

Audit commentary

The switching console manages HHR switch gains. The NT generation starts the process.

340 HH CS files were recorded on the event detail report. All were compliant.

The switch breach report did not record any late HH CS files.

Audit outcome

Compliant

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

Code reference

Clauses 17 and 18 Schedule 11.3

Code related audit information

A losing trader or gaining trader may request that a switch request be withdrawn at any time until the expiry of 2 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 2 business days after receiving notice from the registry manager in accordance with clause 22(b), the losing trader must comply with clauses 3,5,10 and 11 (whichever is appropriate) and the gaining trader must comply with clause 16 (clause 18(f)).*

Audit observation

The event detail reports were reviewed to:

- identify all switch withdrawal requests issued by Mercury, and check a sample for accuracy,
- identify all switch withdrawal acknowledgements issued by Mercury, and check a sample of rejections, and
- confirm timeliness of switch withdrawal requests.

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

Audit commentary

Like the other switching files, NW and AW files are triggered in SAP by the switching team.

NW

Each switch withdrawal request is assessed and actioned based on the staff member's findings.

Of the 1,830 NWs issued 307 (16.8%) were rejected. I checked the withdrawal codes for a diverse sample of 21 rejected NWs and found five were incorrect:

- three were sent using DF (date failed) but CE (customer error) is correct as these were not requested ten days in advance but requested for the incorrect date,
- ICP 1002138853UN35E was sent using UA (unauthorised switch) and was resent with the correct code of WS (wrong switch), and
- ICP 0000013786CPBB3 was sent using WS (wrong switch), this was then sent using DF (date failed) and was accepted; the switch was not forward dated more than ten days and the CE (customer error) code would have been correct.

The switch breach history report recorded:

- 140 NA (NW delivery after switch completion) breaches - I checked the 15 latest files and found eight of these were due to communication between the customer and the other trader to resolve before the subsequent NW could be sent, and the remaining seven were due to the wrong premise being switched in and this took more than two months to be identified, and
- 26 SR (NW after initial withdrawal rejection) breaches, where the subsequent NW was issued more than ten business days after the initial NW - I checked the 15 latest files and found eight of these were due to communication between the customer and the other trader to resolve before the subsequent NW could be sent.

AW

222 (8.5%) of the 2,613 AWs issued by Mercury were rejections. 64 of these were accepted on reissue. I reviewed diverse sample of 14 rejections by Mercury, and confirmed they were rejected based the information available at the time the response was issued.

The switch breach history report did not record any late AW files.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.15 With: Clauses 17 & 18 of schedule 11.3 From: 01-Jan-21 To: 18-Nov-21	Five sent with the incorrect withdrawal code of a sample of 21 rejected NWs. 140 NA breaches. 26 SR breaches. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**

Low	I have rated the controls as strong as Mercury controls are robust but due to the complexity of these types of withdrawals there will always be some late switch withdrawals and acceptances. The audit risk rating is low as the volume of backdated switch withdrawals is low in relation to the overall volume of switches processed and the processing of these increases the submission accuracy.

Actions taken to resolve the issue	Completion date	Remedial action status
Five sent with the incorrect withdrawal code of a sample of 21 rejected NWs. The team have been reminded of the correct use of withdrawal codes and process documentation will be updated as necessary to assist when manual file processing is required. **140 NA breaches.** **26 SR breaches.** We will continue with our strong controls in this area. Late AW and NW files are often unavoidable but necessary meaning 100% compliance in this area is not attainable.	Mar 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will be focussing on reducing the risk of human error by providing additional training and updating process documentation. We will ensure extra scrutiny is placed on testing before any minor fixes are implemented to ensure they address and resolve the issue completely.	N/A	

4.16. Metering information (Clause 21 Schedule 11.3)

Code reference

Clause 21 Schedule 11.3

Code related audit information

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

> *21(a)- the trader who carries out the interrogation, switch event meter reading must ensure that the interrogation is as accurate as possible, or that the switch event meter reading is fair and reasonable.*
>
> *21(b) and (c) - the cost of every interrogation or switch event meter reading carried out in accordance with clauses 5(b) or 11(b) or (c) must be met by the losing trader. The costs in every other case must be met by the gaining trader.*

Audit observation

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

Audit commentary

The reads applied in switching files were examined in **section 4.3** for standard switches, **section 4.10** for switch moves, and **sections 4.4** and **4.11** for read changes.

As detailed in **section 4.10**:

- all five ICPs sampled of a possible eight switch moves where the last actual read date is for the date before the switch event date were sent with the incorrect read type of "E" due to a coding error,
- all ten ICPs sampled of a possible 26 switch moves with last actual read dates more than one day before the event date and an actual switch event read type had the incorrect read type of "A" and should have been sent as "E", and
- one switch move CS file (ICP 1000596369PCDBA) was sent with the incorrect last read due to a meter switch occurring at the same time as the switch.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.16 With: Clause 21 of schedule 11.3 From: 01-Jan-21 To: 19-Nov-21	Eight files sent with an incorrect last read date and read type of "E". Ten files sampled of a possible 26 CS files were sent with a last read labelled incorrectly as an actual. One switch move switch sent with incorrect last read. 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	I have rated the controls moderate as logic changes are being deployed without sufficient testing to identify the impact of such changes and subsequently causing non-compliance. The audit risk rating is assessed to be low, as the effect on reconciliation will be minor.

Actions taken to resolve the issue	Completion date	Remedial action status

Eight files sent with an incorrect last read date and read type of "E". See comments in section 4.10. **Ten files sampled of a possible 26 CS files were sent with a last read labelled incorrectly as an actual.** See comments in section 4.10. **One switch move switch sent with incorrect last read.** See comments in section 4.10.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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

Code reference

Clause 11.15AA to 11.15AC

Code related audit information

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

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

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

Audit observation

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

Audit commentary

Mercury's retention process commences once the 180-day period has passed.

Review of the event detail report identified 464 NWs with a CX withdrawal reason code issued within 180 days of CS completion where Mercury was the losing trader. I reviewed a sample of ten NWs which were rejected by the other trader and found that the customer had initiated contact and requested to come back to Mercury due to a variety of reasons.

Audit outcome

Compliant

5. MAINTENANCE OF UNMETERED LOAD

5.1. Maintaining shared unmetered load (Clause 11.14)

Code reference

Clause 11.14

Code related audit information

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

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

Audit observation

The processes to identify and monitor shared unmetered load were discussed. The registry lists and AC020 reports were reviewed to identify all ICPs with shared unmetered load and assess compliance.

Audit commentary

Mercury supplies 87 ICPs with shared unmetered load. All have the unmetered flag set to Y and daily unmetered kWh recorded. No inaccurate shared unmetered loads were identified through review of the AC020 report.

Audit outcome

Compliant

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

Code reference

Clause 10.14 (2)(b)

Code related audit information

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

Audit observation

The AC020 reports were examined to identify all unmetered load over 3,000 kWh per annum. Any ICPs with unmetered load greater than 3,000 kWh per annum were examined.

Audit commentary

Under Exemption 309, Mercury is exempted from complying with the obligation in clause 10.14(2)(b) of the Electricity Industry Participation Code 2010 ("Code") to not treat load expected to exceed 9,000 kWh in any 12-month rolling period as unmetered load. This exemption applies only to installation control points ("ICPs") 0000161894CK3EF, 0000161895CKFAA, 0001393839UN86B, 0000161897CKF2F, 0000190118TR62B, 0000161899CKCB4 and 0000161900CK406. The affected ICPs are all now included on the DUML register.

71 ICPs have annual loads over 3,000 kWh. 35 are on the DUML register and are compliant, including the ICPs which were subject to exemption 309. The remaining 36 ICPs have loads between 3,000 and 6,000 kWh and all have predictable loads.

The previous audit found eight ICPs over the thresholds which were not an approved load type. These are now managed via the DUML process.

Audit outcome

Compliant

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

Code reference

Clause 10.14 (5)

Code related audit information

If the unmetered load limit is exceeded the retailer must:

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

Audit observation

The AC020 reports were examined to identify all unmetered load over 3,000 kWh per annum. Any ICPs with unmetered load greater than 6,000 kWh per annum were examined.

Audit commentary

All ICPs with unmetered load over 6,000 kWh are included on the DUML audit register.

Audit outcome

Compliant

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

Code reference

Clause 11 Schedule 15.3, Clause 15.37B

Code related audit information

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

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

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

Audit observation

Mercury has 12 distributed unmetered load databases.

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.

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	Next audit due	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)	Database indicative kWh variance PA +=over = under
Rotorua Lakes DC	20/02/2022	Under review	No	Yes	No	Yes	No	Yes	Yes	Yes	No	-33,000
Avondale Business Association	5/04/2021	5/04/2023	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Accurate
Ardmore Airport	25/05/2021	25/05/2022	No	Yes	No	Yes	No	Yes	Yes	No	No	Very minor
NuLite	1/12/2021	Under review	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Accurate
Acacia Cove	1/06/2020	1/06/2022	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Accurate
IntelliHUB Gatekeeper ICPs	31/05/2021	25/05/2024	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Accurate
Masterton DC	1/03/2022	Under review	No	Yes	Yes	No	No	Yes	Yes	No	No	+49,000
Carterton DC	14/05/2020	1/12/2022	No	No	Yes	No	Yes	Yes	No	No	No	Minor
South Wairarapa DC	1/06/2021	1/07/2022	No	No	Yes	Yes	Yes	Yes	Yes	No	No	+11,000
Selwyn DC	31/12/2020	17/08/2022	No	Yes	Yes	Yes	No	Yes	Yes	No	No	+556,400
Invercargill CC	11/02/2022	Under review	No	Yes	Yes	Yes	No	Yes	Yes	No	No	+101,800
Vodafone	10/08/2021	20/04/2022	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	-40,000

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-Mar-21 To: 28-Feb-22	Submission errors found in six databases. The specific findings are detailed in the DUML database audit reports. Potential impact: High Actual impact: High Audit history: Multiple Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as moderate as Mercury are working with the customers to improve the level of accuracy. 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
Rotorua Lakes DC – RLC are currently working to fix the discrepancies identified in the recent DUML audit. Masterton DC – We are working closely with Masterton who are currently conducting a full review of their DUML database. Once this has been completed, we will be ensuring any discrepancies identified in the audit have been resolved and that regular reviews of the database are conducted to ensure ongoing accuracy. Selwyn DC – The LED roll out project completion and subsequent database updates are due to be completed by May 22. This was the main cause of the audit discrepancies and we expect a significant improvement in the database accuracy to reflect in the next DUML audit. Invercargill CC – We have requested ICC to complete a full database review. Once this has been completed, we will be ensuring any discrepancies identified in the audit have been resolved and that regular reviews of the database are conducted to ensure ongoing accuracy. Vodafone – Mercury has been in regular contact with Vodafone to address the wattage discrepancies identified in the last audit. The next audit is due to be completed in April.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

As above.	N/A	

6. GATHERING RAW METER DATA

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

Code reference

Clause 10.13, Clause 10.24 and Clause 15.13

Code related audit information

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

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

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

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

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

Audit observation

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

Audit commentary

Metering installations installed

Mercury's new connection process includes a check that metering is installed before electrical connection occurs, and that any unmetered load is quantified.

As recorded in **section 2.9**, The audit compliance report recorded 70 "active" ICPs where the metering category was 9 or blank, indicating that no meters were present, and the unmetered flag was set to no. All were checked:

Count	Comment
32	MEP accepted nomination, awaiting meter asset data.
16	These are DUML ICPs and no MEP is expected.
17	No MEP nomination was raised: • 11 of these were due to timing and have since had an MEP nominated and meters added, • two ICPs have since been disconnected and moved to an inactive status, • two ICPs (0000513428NR4C0 and 0000027221WE41D) are active but have no metering or unmetered load recorded; this is recorded as non-compliance below and in **sections 2.1** and **2.11**, and • **t**wo ICPs (0128950536LC139 and 0042710550PCB39) are recorded on the registry as "active" but are disconnected; this is recorded as non-compliance in **sections 2.1** and **3.8**.
5	Metering details were populated on the registry after the report was run.

70	Total

The previous audit recorded that ICP 0001448727UN8E8 had metering on site, but MNON was nominated in error for 12 February 2011 and due to subsequent registry events Mercury were unable to nominate Metrix for the correct date. The issue has been resolved and Metrix are correctly recorded as the MEP from the initial electrical connection date onwards.

Submission by subtraction

Exemption 307 exempts Mercury from complying with the obligation in clause 10.24(c) of the Electricity Industry Participation Code 2010 ("Code") to not to use subtraction to determine submission information. This exemption applies only to ICP 0003133903AA777.

The exemption expires on the earlier of 1 December 2030, the date when Mercury is no longer recorded in the registry as being the trader for ICP 0003133903AA777, the date when Accucal is no longer recorded on the registry as the MEP, the date on which the meter programming, metering or distribution configuration is changed, the date on which any other consumer is connected to the same 11kV distribution substation as ICP 0003133903AA777, and the date on which any other consumer is connected to the same 11kV distribution substation as ICP 0003133903AA777.

There are no other examples of submission by subtraction.

Distributed generation

A report is run monthly to compare the distributor's generation fields against Mercury's records. Any found where the distributor has distributed generation indicated and Mercury do not have details are investigated. A part of this process includes determining with the customer if they wish to gift the generation. All customers who wish to gift are managed in an excel spreadsheet. This is used by the Energy Services team to notify the Reconciliation Manager.

The list file contained 4,063 active ICPs with distributed generation capacity recorded by the distributor. Of those:

- 3,955 ICPs are NHH settled; unmetered ICP 0000001000MR7FD (Atiamuri Generation SW ICP) is an SB ICP and has the DFP profile assigned, all other ICPs have the RPS profile assigned on the registry, and
- 108 ICPs are HH settled and have the HHM or HHR profile assigned.

3,884 ICPs with RPS profile recorded on the registry have distributed generation recorded and import/export metering. Submission data for a sample of five of these ICPs was checked, and I found the PV1 profile was correctly applied in the AV080 NHH submissions for all NHH ICPs with generation irrespective of the fuel type of the generation installed meaning some non-solar generation is being incorrectly labelled as PV1. The PV1 / EG1 profiles were also not recorded against the ICPs on the registry due to a limitation in SAP which can only record three characters for a profile. The incorrect profiles on the registry are recorded as non-compliance in **section 2.1**.

71 of the NHH settled ICPs and 22 HHR ICPs with generation capacity recorded by the distributor do not have settled I flow registers. 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. All 93 ICPs mentioned above were reviewed to determine whether distributed generation was present and found:

- 25 are Tesla battery chargers and any generation is being gifted,
- 13 do not have generation present,
- 21 are being investigated to check if generation is present,
- It was confirmed that generation is submitted for eight ICPs despite the metering details not being updated in the registry

- one ICP is a backup generator and is not exporting, and
- 25 ICPs have generation that is not submitted.

I rechecked discrepancies identified during the previous audit:

- ICP 0007130338RNA72 is indicated by Orion to have wind generation, which was confirmed to be correct in their report; the same issue is present of the ICP below and I have left the recommendation in **section 2.1** to ensure visibility.
- ICP 0004922952WE458 is confirmed not to be exporting to the grid and therefore the distributor should remove these details from the registry.

Bridged meters

Mercury confirmed five ICPs were bridged to reconnect during the audit period and were later unbridged. Consumption was not quantified by the meter during this period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: Clause 10.13 From: 11-Jan-21 To: 31-Dec-21	While meters were bridged, energy was not metered and quantified according to the code for five ICPs. Some ICPs with distributed generation not quantified. 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 because 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.

Actions taken to resolve the issue	Completion date	Remedial action status

While meters were bridged, energy was not metered and quantified according to the code for five ICPs. Mercury will continue to bridge meters on an as need basis in the best interest of our customers. In some cases, bridging is unavoidable which means compliance is unattainable. We have strong processes in place to ensure all consumption is quantified and reported in a timely manner. **Some ICPs with distributed generation not quantified.** This continues to be a challenging area with some customers often refusing import/export metering. We have received some suggestions from the auditors on how to combat this and will look into working with distributors where necessary. We have reporting and processes in place to follow up on generation sites without metering however staffing shortages has meant this process has not been prioritised. Now the team is fully staffed we will be looking at what we can do to ensure all backlog is cleared and the report is reviewed and actioned regularly.	N/A Jun 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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.

Responsible party	POC	Description	NSP	MEP	Certification expiry date (NSP table)	Recon Type
MRPL	ARA2201	ARATIATIA	ARA2201MRPLGG	MRPL	23/07/2022	GG
MRPL	ARI1101	ARAPUNI	ARI1101MRPLGG	MRPL	16/12/2022	GG
MRPL	ARI1102	ARAPUNI	ARI1102MRPLGG	MRPL	16/12/2022	GG
MRPL	ATI0111	ATIAMURI	ATI0111LINENP	MRPL	16/08/2022	NP
MRPL	ATI0111	ATIAMURI	ATI0111MRPDNP	MRPL	16/08/2022	NP
MRPL	ATI0112	ATIAMURI	ATI0112HAWKNP	MRPL	26/07/2023	NP
MRPL	ATI0112	ATIAMURI	ATI0112MRPDNP	MRPL	26/07/2023	NP
MRPL	ATI2201	ATIAMURI	ATI2201MRPLGN	MRPL	26/08/2022	GN
MRPL	KAW1101	KAWERAU GEOTHERMAL	KAW1101KRGLGG	MRPL	23/08/2022	GG
MRPL	KPO1101	KARAPIRO	KPO1101MRPLGG	MRPL	16/08/2022	GG
MRPL	LTN2201	TURITEA	LTN2201MRPLGG	MRPL	27/12/2022	GG
MRPL	MTI2201	MARAETAI	MTI2201MRPLGG	MRPL	19/03/2022	GG
MRPL	NAP2202	NGATAMARIKI	NAP2202MRPLGG	MRPL	27/11/2022	GG
MRPL	OHK2201	OHAKURI	OHK2201MRPLGG	MRPL	24/06/2023	GG
MRPL	SWN2201	SOUTHDOWN	SWN2201MRPLGG	MRPL	19/02/2023	GG
MRPL	WKM2201	WHAKAMARU	WKM2201MRPLGG	MRPL	14/08/2023	GG
MRPL	WKM2201	WHAKAMARU	WKM2201TUARGN	MRPL	30/05/2023	GN
MRPL	WPA2201	WAIPAPA	WPA2201MRPLGG	MRPL	17/02/2024	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 is expected to advise the Mercury Energy Services team of any changes to the NSP table required via email. The Energy Services team then create an AV180 report detailing the NSP changes and submit it to the Reconciliation Manager.

All points of connection had current certification at the time the table was reviewed. One new GIP was created during the audit period (LTN2201MRPLGG), and 12 existing GIPs had changes of meter certification details.

NSP	Certification date	Certification expiry date	Date updated	Days between cert and update
LTN2201MRPLGG	28/05/2021	27/12/2022	22/09/2021	117
ARA2201MRPLGG	23/07/2019	23/07/2022	20/10/2021	820
ATI0111LINENP	4/02/2021	16/08/2022	5/03/2021	29
ATI0111MRPDNP	4/02/2021	16/08/2022	5/03/2021	29
ATI2201MRPLGN	25/01/2021	26/08/2022	12/01/2022	352
KPO1101MRPLGG	15/01/2021	16/08/2022	11/06/2021	147
MTI2201MRPLGG	18/08/2020	19/03/2022	21/01/2022	521
NAP2202MRPLGG	15/01/2021	27/11/2022	9/04/2021	84
OHK2201MRPLGG	5/11/2020	24/06/2023	5/03/2021	120
SWN2201MRPLGG	21/07/2021	19/02/2023	10/09/2021	51
WKM2201MRPLGG	14/08/2020	14/08/2023	9/12/2020	117
WKM2201TUARGN	29/10/2021	30/05/2023	1/12/2021	33
WPA2201MRPLGG	17/02/2021	17/02/2024	2/03/2021	13

The 13 late updates are recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.2 With: Clause 10.26 (6), (7) and (8) From: 01-Jan-21 To: 31-Dec-21	13 meter certification expiry dates were updated late. 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	The controls are assessed as weak as no updates occurred within the required timeframe. The risk is low because the meters were appropriately certified at all times.

Actions taken to resolve the issue	Completion date	Remedial action status

For the new Turitea Wind Farm GIP (LTN2201MRPLGG), the metering calibration certification was completed on 28th May 2021, but this site was not generating until early Sept 2021. Meter calibration certificates and installation certificates were not ready until the final onload test was performed on 8th Sept 2021. Mercury received the certificates on 22 Sept 2021 and updated the NSP register immediately. The ATH has taken 28th May 2021 as the certification date. For all other 12 GIPs, all these points are certified with more than 1 revenue meter, mainly due to the number of generating units at these 12 power stations. Each unit revenue meter has its own test routine and can be months or years out from another unit under one GIP. Mercury has been proactively engaging ATH to re-certify each unit revenue meter, however we can only update the NSP register based on the nearest due dates of all unit revenue meter certificates under the same GIP. This can be somewhat misleading that an old certification date was updated months or years after, which in fact we simply picked the date from the next due unit revenue meter certificates for NSP register. The calculated "days between cert and update" assumed that there is only 1 metering system per GIP, which is unrealistic to our generating environment where all power stations have multiple sets of revenue meter certification with different certification and expiry dates. We believe this is more of a technical non-compliance due to updating limitations and we believe our processes and controls are strong.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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

Code reference

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

Code related audit information

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

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

Audit observation

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

Audit commentary

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, Service request notes from FSPs, or the customer. Upon identifying a possible defective meter, a field services job is raised to investigate and resolve the defect.

I checked the process for ten defective NHH meters, five defective HHR meters and five NHH bridged meters. In all cases a field services job was raised, and the MEP advised.

Corrections are discussed in **section 2.1** for NHH meters and **8.2** for HHR meters.

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

The data collection process was examined.

- AMS and EDMI collect HHR information as agents.
- MEPs collect NHH AMI data as MEPs.
- MRS collects manual NHH data as an agent.
- AMS collects generation data and monitoring occurs by Mercury's generation engineers.

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.

Mercury's processes for validation of generation data were reviewed.

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, apart from one ICP which was not read within the maximum interrogation cycle:

Agent	ICP	Last Collected Interval	Comment
AMS	0000033002TC7DD	16/04/2019	The meter is attached to a generator which is only switched on during power outages, and cannot be read during outages. AMS is working to resolve the communications issues.

I re-checked ICP 0000536540NRECD recorded during the previous audit and found it had undergone a meter replacement and regular readings are now being obtained.

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 audits.

Clock synchronisation event information is provided to Mercury by its agents and MEPs. I reviewed some recent examples of clock synchronisation events sent by AMS and EDMI 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. Time sync function for grid generation meters is performed between AMS and Accucal where AMS identifies a meter requiring a time correction and requests Accucal to undertake this task on behalf of Mercury.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.5 With: Clause 2 Schedule 15.2 From: 16-Apr-19 To: 31-Dec-21	ICP 0000033002TC7DD was not interrogated within the maximum interrogation cycle. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong. One ICP was not read during the maximum interrogation cycle and site visits to resolve the issue has been delayed in part by the COVID-19 lockdowns. The impact is assessed to be low, because only one meter is affected.

Actions taken to resolve the issue	Completion date	Remedial action status
ICP 0000033002TC7DD is a one-off unique case. We will provide any necessary support to the MEP to resolve this.	Date	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will continue with our strong controls in this area.	N/A	

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

Code reference

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

Code related audit information

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

All validated meter readings must be derived from meter readings.

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

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

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

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

Audit observation

The data collection process was examined.

Processes to provide meter condition information were reviewed as part of the MRS agent audit. Mercury's processes to manage meter condition information were reviewed.

Processes for customer and photo reads were reviewed.

Audit commentary

Manual readings

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

MRS monitors meter condition, as required by schedule 15.2 and provides information on meter condition along with the daily reads. Wells also provided a monthly summary report containing missing seal and broken seal events. This meter condition summary report 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.

MRS meter condition information

Staff work through the notes provided each day, and the database is used to provide additional information and support when investigating ICPs. 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 for all H&S issues (electrically unsafe) to resolve issues where required since the transition to MRS. However non-H&S related meter condition codes (broken seals, different meter number, suspect tamper) have not been processed in part because there is no longer a separate monthly summary meter condition report being provided to the Premise and Metering team by MRS similar to how Wells provided this information explicitly prior to Feb 2021. This change to the provision of a separate meter condition report in addition to the daily meter read file that including meter condition information has meant not all meter condition issues have been reviewed in a timely manner.

No phase failure issues have been reported by MRS during the audit period, but I checked their training material and confirmed the appropriate training and instruction was supplied to meter readers.

I checked a sample of five readings provided by MRS and confirmed that they are loaded into SAP as actual readings and are validated.

Customer and photo readings

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) before

going through the same suite of system meter read validations to ensure the read is reasonable and in line with the ICPs previous consumption pattern. Estimated reads become permanent estimates, which are labelled as validated reads, therefore subsequent estimated reads are being validated against earlier estimates. I reviewed six examples of customer readings and found that while these customer reads had undergone reasonable tests and validation against a customer's previous consumption pattern, that not all had been appropriately validated against actual readings from other sources.

In the rare event that customer readings are obtained by MRS, a no read is recorded, and the customer reading is inserted in the 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.

Because not all customer reads have been validated against actual readings from other sources but are then made permanent estimate reads after six months for the purpose of calculating historic estimate volumes, their use in the HE calculation process described in **section 12.11** is non-compliant.

Description	Recommendation	Audited party comment	Remedial action
Reinstate separate monthly summary meter condition report between MRS and Mercury	Reinstate separate monthly non- critical meter condition report (broken seals, different meter number, suspect tamper) between MRS and Mercury's Premise and Metering team to enable timely investigation and resolution of issues identified	We will be working with AD Riley to reinstate this monthly reporting.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.6 With: Clause 3(2) Schedule 15.2 From: 01-Jan-21 To: 31-Dec-21	Customer reads are not being validated against another set of validated meter reads before being considered permanent estimates after six months. Potential impact: Low Actual impact: Low Audit history: once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because customer reads are being correctly flagged as estimate reads in SAP however the SAS system uses all readings (actual and estimated) as available for use in calculating historic estimates. The risk is rated as low, as number of customers reads used is small relative to the total number of reads.

Actions taken to resolve the issue	Completion date	Remedial action status
Until this audit, our treatment of estimated and customer reads has been considered compliant. We were unaware our current processes did not meet the code requirements for permanent estimates. We have discussed this with the auditors and will begin working on changing our permanent estimate process to become compliant.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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 readings apply from 0000hrs on the day after the last meter interrogation up to and including 2400hrs on the day of the meter interrogation except in the case of a switch event meter reading which applies to the end of the day prior to the event date for the losing trader and the start of the event date for the gaining trader as required by this clause.

Readings relating to status event changes (active to inactive and vice versa) need to apply from the beginning of the day the status event change relates to.

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

I walked through the process for NHH to HHR and HHR to NHH meter changes and checked five upgrades and five downgrades. The industry has adopted a process that achieves accuracy in relation to submission information and ICP days, but compliance with this clause is not achieved because a NHH and HHR meter cannot be "present" on the same day in the registry.

- For upgrades, the process is to "remove" the NHH meter from the registry and Energy Database on the day before the meter change, and then the ICP becomes HHR all day on the day of the meter change, with the trading periods up until the meter change being populated with zeros.

- The reverse applies for downgrades with the ICP treated as HHR all day on the date of the removal, with zeros populated until the end of the day and the NHH meter installed the following day.

Non-compliance is recorded for Mercury because some reconnection reads where treated as being from the end of the day rather than at the beginning of the day to align with the registry status change to active.

Application of reads was reviewed as part of the historic estimate checks in **section 12.11** and found to be non-compliant.

The content of CS and RR files was examined in **sections 4.3**, **4.4**, **4.10** and **4.11** and confirmed that all reads were correctly applied.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.7 With: Clause 6 Schedule 15.2 From: 01-Jan-21 To: 31-Dec-21	Not all reconnection reads are being applied from 0000hrs on the day of a registry status change to "active". Potential impact: Low Actual impact: Low Audit history: once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because most reads are being correctly applied in SAP. The risk is rated as low, as the number of reads where the read date and time is not being correctly applied is limited to some relating to the reconnection process where an existing estimated read for another purpose (such as Move In) is present in SAP for the same day.

Actions taken to resolve the issue	Completion date	Remedial action status
We will be investigating the ICP in this example to determine what changes are required to fix this issue.	Dec 22	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Our controls and processes in most instances are strong. This issue relates to a very specific circumstance and the impact is low. We will liaise with our ICT team to implement any logic changes required to resolve this issue.	Dec 22	

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 and reporting on ICPs unread during the period of supply was examined.

Audit commentary

The no reads process is managed by the Readings Management team. A weekly no-reads report is produced by the IT department (ICT) and deposited in a directory for consumption by the Price and Quantity team. These reports have been refined and automated during the audit period to better identify issues and to ensure those requiring action get to the appropriate team without the need of the Risk Control team manually screening reports.

A customer engagement list is derived from the filtering process and customer communications in the form of emails, texts and letters are sent out in weekly tranches. Customer responses result in further engagement actions to resolve access and device issues. For those requiring further investigation the process is unchanged and comments are added 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 Readings Management 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's ADR system contains all AMI meter readings delivered by AMI MEPs. When a reading is required an "order" is created which looks for a reading on the required date. If a reading is not available for the required date, readings from one day after or one day prior are used, and if these are not available then readings from two days after or two days prior are used, and the scheduled read / billed date is also amended to reflect the date the read relates to. This revised process ensures many more readings are available for use.

Mercury is still working on the partial automation of the read attainment process which was discussed in previous audits. 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 206 ICPs unread during the period of supply, where the period of supply ended between 7 January and 30 September 2021. I checked an extreme case example of all ICPs where the period of supply was more than 200 days and found that exceptional circumstances were proven for 16 examples checked. Due to the time needed to complete, exceptional circumstances cannot be proven for the 152 ICPs with a supply period of less than 90 days.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 01-Jan-21 To: 31-Dec-21	The best endeavours requirement was not met for 152 ICPs not read during the period of supply. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because they have been improved during the audit period. The risk is rated as low, as number of customers not read during the period of supply is small relative to the customer base.

Actions taken to resolve the issue	Completion date	Remedial action status
This is an area of strong control for Mercury. During this audit period we also experienced additional difficulties due to Covid-19 lockdowns & restrictions, however, we believe our controls have mitigated risk in most cases and will continue to be effective in the future.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will continue with our strong controls.	N/A	

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 February to August 2021 were provided and reviewed to determine whether they met the requirements of clauses 8 and 9 of schedule 15.2.

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

Audit commentary

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
Feb-21	339	142	927	99.25%
Mar-21	365	141	908	99.26%
Apr-21	334	140	874	99.27%
May-21	334	138	872	99.29%
Jun-21	336	142	877	99.31%
Jul-21	339	141	877	99.30%
Aug-21	340	147	888	99.29%

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

The read attainment percentage is similar to the last audit. 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:

- one ICP was unread due to the meter reader advising the property was demolished however the ICP is still showing as active on the registry, and
- nine ICPs were unread due to access issues - many attempts had been made and recorded during the unread period.

I reviewed meter reading reports for February to August 2021 and confirmed that they met the meter reading frequency report requirements and that the reports were submitted by the 20th business day of the month following the report period.

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 4 months, for which consumption information is required to be reported into the reconciliation process. A validated meter reading is obtained at least once every 4 months for 90% of the non-half hour metered ICPs.

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

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

Audit observation

The meter reading process was examined. Monthly reports for February to August 2021 were reviewed to determine whether they met the requirements of clauses 8 and 9 of schedule 15.2.

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
Feb-21	347	23	2,914	98.02%
Mar-21	344	16	2,817	98.09%
Apr-21	346	13	2,924	98.00%
May-21	347	21	3,178	97.87%
Jun-21	351	27	3,970	97.40%
Jul-21	356	56	5,486	96.37%
Aug-21	356	54	5,636	96.29%

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

There has been a 1-2% decline in read attainment since the previous audit. I reviewed a sample of 10 ICPs not read in the previous four months determine whether exceptional circumstances exist, and if Mercury

had used their best endeavours to obtain readings. All ten examples were access related issues, and in all cases multiple attempts had been made to obtain readings.

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 MRS. 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 MEPs as part of their own audits.

I confirmed with MRS that there were no changes to their processes or systems since their 2021 audit that could have a negative impact on Mercury's compliance.

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 and generation data is collected by AMS.

HHR interrogation data requirements were reviewed as part of their agent audits.

Audit commentary

Compliance with this clause has been demonstrated by AMS and 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 audits in 2021.

Audit outcome

Compliant

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

Code reference

Clause 11(2) Schedule 15.2

Code related audit information

The following information is collected during each interrogation:

> *11(2)(a) - the unique identifier of the data storage device*
>
> *11(2)(b) - the time from the data storage device at the commencement of the download unless the time is within specification and the interrogation log automatically records the time of interrogation*
>
> *11(2)(c) - the metering information, which represents the quantity of electricity conveyed at the point of connection, including the date and time stamp or index marker for each half hour period. This may be limited to the metering information accumulated since the last interrogation*
>
> *11(2)(d) - the event log, which may be limited to the events information accumulated since the last interrogation*
>
> *11(2)(e) - an interrogation log generated by the interrogation software to record details of all interrogations.*

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

Audit observation

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

Audit commentary

Compliance with this clause has been demonstrated by AMS and 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 2021 audits.

Audit outcome

Compliant

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

Code reference

Clause 11(3) Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

Audit observation

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

Audit commentary

Compliance with this clause has been demonstrated by AMS and 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 2021 audits.

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

Audit observation

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

Mercury's clock synchronisation process ensures that trading period duration for generation meters is normally 30 minutes within ± 2 seconds. A sample of clock synchronisation events were reviewed.

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 changes to HHR processes since their 2021 audits.

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

Audit outcome

Compliant

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

Code reference

Clause 18 Schedule 15.2

Code related audit information

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

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

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

Audit observation

Processes to archive and store raw meter data were reviewed.

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 January 2017, and HHR and generation meter data from January 2017 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**.

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

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

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

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

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

Audit observation

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

Audit commentary

Where errors are detected during validation of non-half hour meter readings then firstly a check reading is performed. If an original meter reading cannot be confirmed by a check reading, then an estimated reading is used.

When a meter reading is found to be transposed, Mercury swaps the readings between registers and the corrected readings are appropriately recorded as estimates.

Audit outcome

Compliant

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

Code reference

Clause 19(2) Schedule 15.2

Code related audit information

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

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

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

(i) The total of all substituted intervals matches the total consumption recorded on a meter, if available; and

(ii) The reconciliation participant considers the pattern of consumption to be materially similar to the period in error

Audit observation

Processes for the correction of HHR meter readings were reviewed. Five examples of HHR corrections 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, and
- 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 provided five examples of HHR data corrections during the audit period where they have typed in the missing intervals. These are estimated by calculating manually using the previous two half hour periods. All of the five were appropriately corrected. All changes have an audit trail and a journal, which is recorded in either the "attachment list" in SAP or found in an email archive.

Mercury was advised by EDMI that a 160x multiplier had not been applied to the import and export streams between 19 December 2017 and May 2021 when a new meter was installed. Mercury's submission data was incorrect from December 2017 to May 2021. HHR corrections are not able to be applied across all affection consumption periods. Compliance is recorded for the correction process, but non-compliance is recorded in **section 12.9** because the compensation factor in the registry was not used.

The following were conditions put in place by Mercury for the use of the HHM profile for AMI HHR data:

- the half hour data stream is checked and validated by Mercury acting as the trader using a process audited under its reconciliation participant audit and includes:
  - (i) a process for recognising and estimating half hour periods that are in error (high, low, duplicated, negatives or missing)
  - (ii) if there is a discrepancy between the accumulating register and the half hour data stream, the HHR data will be adjusted to match the NHH reads for the same time period
  - (iii) a process to ensure that the half hour data stream is provided to the reconciliation manager in accordance with the reconciliation manager functional specification, including the management of daylight-saving time.

I reviewed three ICPs with AMI meter changes occurring in July 2021 and found that the process to compare interval data to the difference between two reads from the accumulating register is not being performed consistently. The calculation between the supplied 'midnight' reads and the interval data from the removed meters did not match for two of the ICPs / meters and this process does not consider switch gain or meter install / removal reads as these are not provided by the AMI MEP as part of the AMI data

files. The Code and the profile rules require that HHR intervals are scaled to match the total difference between register reads. This is not always occurring and is recorded as non-compliance.

I also noted that missing AMI interval data is not identified and escalated to AMI MEPs or their data collection agents resulting in a higher proportion of estimated HHR data remaining in the AV090 submission files compared to Mercury's non-AMI HHR volumes. In all three meter change examples I reviewed this missing interval data was still outstanding.

I checked the quantity of AMI HHR intervals estimated for use in the HHM profile for the initial January 2022 submission. Mercury performed estimations for 1.29 million intervals out of a total number of intervals submitted of 197.7 million intervals (0.6% of all intervals estimated). While the percentage of intervals estimated is relatively low as a proportion of total intervals used for HHM submission, the number of individual ICPs impacted is a higher percentage. The impact of this outstanding estimated interval data at the 7-month wash up period in terms of both submission accuracy (+/- 10%) and also the impact to the last opportunity to produce accurate seasonal shapes for NHH submission for all NHH retailers cannot be quantified as there is no formal reporting in place or escalation of outstanding data to the MEPs.

Corrections to generation data seldom occur and the same process is used.

Audit outcome

Non-compliant

<table>
<tr><th>Non-compliance</th><th colspan="3">Description</th></tr>
<tr><td>Audit Ref: 8.2
With: Clause 19(2) Schedule 15.2

From: 01-Jan-21
To: 31-Dec-21</td><td colspan="3">HHM interval volumes not aligned with accumulating register reads
Potential impact: Medium
Actual impact: Low
Audit history: None
Controls: Moderate
Breach risk rating: 2</td></tr>
<tr><th>Audit risk rating</th><th colspan="3">Rationale for audit risk rating</th></tr>
<tr><td>Low</td><td colspan="3">The controls are recorded as moderate because there is room for improvement for the HHM profiled ICPs.
HHM interval data is used by the RM in the process to produce seasonal shape files for all NHH retailer to use for HE calculations – any errors in this data impacts all NHH retailers.
The impact on settlement and participants is minor; therefore, the audit risk rating is low.</td></tr>
<tr><th colspan="2">Actions taken to resolve the issue</th><th>Completion date</th><th>Remedial action status</th></tr>
</table>

The few examples where HHM intervals did not align with accumulating register reads were limited to meter replacement scenarios only. The impact is low as we already check the consistency between interval data and register reads. For the initial Jan 2022 submission, only 0.6% of HHM intervals were estimated. We have also received confirmation from Vector Metering regarding data attainment- "On average, day one attainment is typically 98.4 – 98.7%, day three to five attainment is typically 99.3 -99.5% and past day five, the attainment increases further. " We have raised the referred meter change examples with ICT to review the logic and implement any necessary changes. In addition, we will follow up with MEP to investigate ICPs where data has not been provided at times of meter replacement.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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

Code reference

Clause 19(3) Schedule 15.2

Code related audit information

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

Audit observation

Error and loss compensation arrangements were discussed.

Audit commentary

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 19(4) and (5) Schedule 15.2)

Code reference

Clause 19(4) and (5) Schedule 15.2

Code related audit information

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

If data is corrected or altered, a journal must be generated and archived with the raw meter data file. The journal must contain the following:

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

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

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

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

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

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

Audit observation

Corrections are discussed in **sections 2.1, 8.1** and **8.2**, 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 within SAP. However, after six months all SAP estimated reads and all customer reads are treated as permanent estimate reads for the calculation of historic estimate (HE) volumes. The change of treatment of the read type is not reflected within the SAP system and we cannot see any audit trail relating to this change in treatment of read types after six months in either the SAP or SAS systems.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.1 With: Clause 3(3) Schedule 15.2 From: 01-Jan-21 To: 31-Dec-21	No visible audit trail present for the change in treatment of estimated and customer reads in the calculation of historic estimate (HE) volumes within SAS or SAP. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The management of reads including any changes to reads robust within SAP. The controls regarding permanent estimates at six months are considered weak, but overall, the controls are recorded as moderate because this section considers all estimations and permanent estimates. The mass treatment of all estimated and customer provided reads as available for use in the calculation of historic estimate volumes once older than six months without an audit trail being present is non-compliant, as users within SAP validating meter reads with periods between reads being greater than six months are not aware of the impact these updates are making to the HE calculations. The impact is rated as low in the absence of any firm data to quantify further.

Actions taken to resolve the issue	Completion date	Remedial action status
See comments in section 2.4.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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 and generation data is collected by agents.

Audit commentary

The MEPs and agents retain the raw, unrounded data. Compliance with this clause has been demonstrated by Mercury's MEPs and agents as part of their own audits. Mercury receives data from EDMI and AMS in the PROFVAL format which includes three decimal places.

Because the agent audit reports were more than seven months old on the audit due date, I confirmed that there had been no changes to agent systems or processes which could affect Mercury's compliance.

AMS, Arc, Smartco, IntelliHUB, Counties and FCLM readings are rounded to zero decimal places on import. This has previously been recorded as compliant because the MEP has the unrounded raw meter data, however a recent review of the wording of this clause has led to a revised interpretation, which is that rounding should not occur until volume information is created. Rounding occurs prior to the creation of volume information, therefore non-compliance exists.

ARC Innovations meters record data to one decimal place. Compliance is recorded in this section because data is not rounded or truncated on receipt by Mercury. Non-compliance is recorded in s**ections 2.1** and **12.7** in relation to submission accuracy.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.3 With: Clause 3(5) of schedule 15.2 From: 02-Jan-21 To: 31-Dec-21	Raw meter data is rounded upon receipt and not when volume information is created. Potential impact: Low Actual impact: Low Audit history: Twice Controls: None Breach risk rating: 5
Audit risk rating	**Rationale for audit risk rating**
Low	There are no controls to prevent rounding of raw meter data, the system is designed to round as soon as the data arrives. There is impact to the Switch loss process as rounded reads are being provided to gaining retailers who do not round reads in their system therefore will recognise the switch read as requiring correction via the RR process – the increased RR activity is an impact to both Mercury and other participants. The impact is rated as low because most other retailers have implemented a 1 kWh threshold before an RR is sent.

Actions taken to resolve the issue	Completion date	Remedial action status
We have previously explored our options to achieve compliance here and the resolution would require extensive system changes and would impact many of our billing and reconciliation processes. This is a high resource, high risk change that would have very little impact on the market and other participants. We have raised this with our ICT department again to investigate alternate solutions.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

As above	N/A	

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. I checked a sample of ten HHR estimates, including five HHR corrections where data was estimated to confirm the process.

Audit commentary

There is a requirement to use "reasonable endeavours" to ensure that estimated data is accurate to within 10%.

Where Mercury is advised by a HHR data collector / agent that data is unrecoverable from a HHR meter then estimates are calculated based on check or surrounding readings where possible, or data from a period with a similar expected quantity and profile to the period to be estimated. 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.

I checked a sample of 10 ICPs and confirmed that these estimates are a reasonable representation of the ICPs consumption profile. I also reviewed the audit trails for these HHR estimations and while audit trails were available for a sample of 10 ICPs I reviewed, they were split across a mix of SAP notes and archived emails which made it challenging to verify these estimations. Mercury has an excellent audit trail template used for their Grid Generation corrections which includes:

- the date of the correction or alteration,
- the time of the correction or alteration,
- the operator ID,
- 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,
- the technique used to arrive at the corrected data,
- the reason for the correction or alteration, and
- approval of the correction

Given the potential impact such C&I estimations could have to Mercury's HHR submission accuracy I recommend that Mercury consider extending this estimation template to include all C&I HHR estimations where this audit trail is captured by this template and saved in the SAP notes function.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 15 Schedule 15.2	Extend the use of the grid generation audit trail template for corrections to all C&I interval data corrections.	We will review our processes and make amendments where necessary.	Identified

However, where Mercury has not received data prior to the deadline for providing submission information for a C&I new connection of recent switch gain ICP where no consumption history is present in SAP, then a zero-value estimation of data is produced as a placeholder to ensure that the ICP is included in the AV140 and ICP days reporting. This estimation of missing data for high consuming HHR ICPs using zero values does not meet the reasonable endeavours threshold required under this clause.

Estimates are created and supplied by IntelliHUB. The process for calculating the estimates was checked during their HHR agent audit and the methodology is sound. IntelliHUB produces estimates for inactive periods, and Mercury's submission process excludes any volumes during inactive periods from submission.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.4 With: Clause 15 Schedule 15.2 From: 01-Jan-21 To: 31-Dec-21	HHR volumes are estimated as zero in order to create a placeholder in the AV-090 and AV-140 files where data not yet provided by the HHR data collectors in time for submission. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	Controls around HHR estimations for unrecoverable data are strong however the process to estimate zero volume for outstanding or late HHR data does not meet the reasonable endeavours threshold for HHR submission accuracy. There are only a few ICPs / meters where this zero-value estimation occurs for the initial submission however as this data is also used by the RM to produce seasonal shape files for all NHH retailers to calculate HE volumes the impact is medium.

Actions taken to resolve the issue	Completion date	Remedial action status

We have strong processes in place where historical consumption is available. The number of ICPs where zero- value estimates have been used is solely for new ICPs where there is no historical consumption available. This accounts for a very small percentage of the total ICPs we have under the HHR profile (~0.13% per month) and only occurs in the initial submission. We have now implemented a new process for switched ICPs which we believe should meet the reasonable endeavours requirement.	Mar 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We have implemented a new estimation process for newly switched in ICPs. This process will use the ICP's annual usage provided by the previous retailer to estimate the missing consumption.	Completed Mar 22	

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.

Meter reader validation

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

Read import validation

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, and
- it is not possible to enter a read for a period which has already been billed, unless the previous invoice is reversed and rebilled.

Billing validation

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, and
- 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

The zero-consumption process has been revised and a new report has been developed that will identify ICPs with zero consumption. This is run on a regular basis and all ICPs are investigated. The process will identify any stopped / bridged meters. I confirmed that bridged consumption information is appropriately estimated and flows through to submission files. I reviewed three examples of volume corrections relating to stopped meters. One ICP was for 853 days, the second was for 535 days and the third was for 208 days. The time taken to identify and resolve these stopped meters is impacting Mercury's ability to complete volume corrections within the 14-month window without the need to compress these corrections where they span a period longer than 14 months

Negative consumption

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.

Consumption while inactive

Consumption while inactive is identified by the data analysts. A report is run that identifies all ICPs with an inactive status and consumption. Currently there 270 ICPs (22,587 kWh) an increase from 84 ICPs (10,584 kWh) during the last audit. 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.

This report only looks for consumption between actual readings held in the SAP system and assumes that there is an actual read as at the date of disconnection. As the process to remotely reconnect an ICP is manual the application of an actual read to denote the status change is also manual and in a number

of cases the disconnection read is applied as an estimate and a reconnection read is not applied if there is already an estimated read present in SAP. The use of estimate reads to denote the beginning of the disconnection period means the reporting cannot detect where consumption is detected on inactive ICP's until two scheduled actual reads are recorded in SAP. For short term periods of disconnection, the absence of actual reads or permanent estimate reads within SAP means not all ICPs are being included in this report.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.5 With: Clause 16 Schedule 15.2 From: 01-Jan-21 To: 31-Dec-21	Not all inactive consumption is being identified and investigated. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The validation controls are generally strong but could be improved for the management of inactive consumption. SAP Inactive consumption report only calculated consumption between 2 actual reads and where the disconnection read is estimated the report does not identify these ICPs and any read differences between the estimated disconnection read and the next actual read. The impact is assessed as low.

Actions taken to resolve the issue	Completion date	Remedial action status
Not all inactive consumption is being identified and investigated. We will investigate what improvements can be made to our reporting (including the possibility of using HHR data) to ensure all ICPs can be identified.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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

Code reference

Clause 17 Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

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

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

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

Audit observation

I reviewed 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 AMS 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 previous agent 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, and
- 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 it is 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 from AMS. 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 (0000001000MR7FD – SB ICP with DFP as the profile) and is not measured by the check meter system. This is considered when reviewing the differences between the primary and check meter data.

AMI

Mercury receives AMI data from several MEPs. 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 Intellihub (IHUB, MTRX and BOPE) and AMS (NGCM and SMCO) MEPs, 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. Arc (ARCS) do not provide emails advising issues with any ICPs that may impact the integrity of the metering data. ARC's time difference report and FCLM meter event logs are provided by SFTP to Mercury, but these are not currently reviewed to ensure the meter health is good in all cases

Mercury also receives a file of all events from each MEP. These files are not reviewed by Mercury to ensure the summary of meter events requiring retailer attention is complete.

The event called "Voltage on the load side of a disconnected meter" is not sent by all AMI MEPs. This event alerts MEPs and traders that a meter is bridged.

HHM

The following were conditions put in place by Mercury for the use of this HHR profile for AMI HHR data:

- the half hour data stream is checked and validated by Mercury acting as the trader using a process audited under its reconciliation participant audit and includes:
    - (i) a process for recognising and estimating half hour periods that are in error (high, low, duplicated, negatives or missing)
    - (ii) if there is a discrepancy between the accumulating register and the half hour data stream, the HHR data will be adjusted to match the NHH reads for the same time period
    - (iii) a process to ensure that the half hour data stream is provided to the reconciliation manager in accordance with the reconciliation manager functional specification, including the management of daylight-saving time.

I reviewed three ICPs with AMI meter changes occurring in July 2021 and found that the process to compare interval data to the difference between two reads from the accumulating register is not being performed consistently. The calculation between the supplied 'midnight' reads and the interval data from the removed meters did not match for two of the ICPs / meters and this process does not consider switch gain or meter install / removal reads as these are not provided by the AMI MEP as part of the AMI data files. The inability to meet this self-imposed condition of this profile may lead to the cancelation of this profile as part of the next profile audit.

I also noted that missing AMI interval data is not identified and escalated to AMI MEPs or their data collection agents resulting in a higher proportion of estimated HHR data remaining in the AV090 submission files compared to Mercury's non-AMI HHR volumes. In all three meter change examples I reviewed this missing interval data was still outstanding.

I checked the quantity of AMI HHR intervals estimated for use in the HHM profile for the initial January 2022 submission. Mercury performs estimations for 1.29 million intervals out of a total number of intervals submitted of 197.7 million intervals (0.6% of all intervals estimated). While the percentage of intervals estimated is relatively low as a proportion of total intervals used for HHM submission, the number of individual ICPs impacted is a higher percentage. The impact of this outstanding estimated interval data at the 7-month wash up period in terms of both submission accuracy (+/- 10%) and also the impact to the last opportunity to produce accurate seasonal shapes for NHH submission for all NHH retailers cannot be quantified as there is no formal reporting in place or escalation of outstanding data to the MEPs. The issues associated with HHR mass market data (HHM profile) are recorded as non-compliance in **section 8.2.**

Description	Recommendation	Audited party comment	Remedial action
Identification and escalation of missing AMI interval data to MEPs	Develop and implement reporting of missing / estimated interval data used in submission of the HHM profile and the process to escalate these instances to the relevant AMI MEP for resolution.	We have contacted the MEPs who have advised that all missing data is sent through to Mercury as soon as it becomes available to them. They have confirmed the current process is the most efficient and any escalation/follow up process would not improve this.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.6 With: Clause 17 Schedule 15.2 From: 01-Jan-21 To: 31-Dec-21	Clock synchronisation and event reports not reviewed for all MEPs. Voltage on the load side of a disconnected meter event is not sent by all AMI MEPs. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because event information is only dealt with if the MEP sends additional correspondence. The impact on settlement and participants is minor because most issues are identified; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Clock synchronisation and event reports not reviewed for all MEPs. We have contacted ARC and FCLM to confirm file paths for these files and will liaise with our ICT team to ensure the files are retrieved successfully and made available for the team to review. **Voltage on the load side of a disconnected meter event is not sent by all AMI MEPs.** Until Nov 21 we were receiving monthly reports from Intellihub for Metering Events which included these, we have reached out to Intellihub to continue providing these reports. The first report has since been received for the team to review going forward. We have also been in touch with the remaining MEPs to ensure this information is being sent and to confirm file paths for these reports. We will liaise with our ICT team to ensure the files are retrieved successfully and made available for the team to review.	May22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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

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

Code reference

Clause 13.136

Code related audit information

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

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

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

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 relevant grid owner half-hour metering information for:

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

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

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

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

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)l- 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 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

Processes to create buying and selling notifications were reviewed. I checked examples of notifications provided and whether any breach allegations had been made.

Audit commentary

There have not been any breach allegations in relation to this clause during the audit period.

Submissions are checked against open trading notifications prior to submission as part of the NZRM/ALLA file editor checks described in **section 12.2**.

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

NHH and HHR ICP days are included on the same report. The process for the calculation of ICP days was examined by checking HHR ICP days for 30 NSPs and NHH ICPs for 30 NSPs to confirm the AV110 ICP days calculation for September 2021 was correct.

I reviewed variances for 22 months of GR100 reports and there were no large discrepancies identified.

Audit commentary

The process for the calculation of ICP days was examined by checking HHR ICP days for 30 NSPs and NHH ICPs for 30 NSPs to confirm the AV110 ICP days calculation was correct. The ICP days reported were as expected.

The following table shows the ICP days difference between Mercury files and the RM return file (GR100) for all available revisions for 22 months. The discrepancies are small and consistently negative, indicating that retailer ICP days are consistently higher than the registry.

Month	Ri	R1	R3	R7	R8	R14	R15
Jan 2020	-	-	-	-	-	-	-0.05%
Feb 2020	-	-	-	-	-	-0.05%	-
Mar 2020	-	-	-	-	-	-0.05%	-
Apr 2020	-	-	-	-0.05%	-	-0.05%	-
May 2020	-	-	-	-0.06%	-	-0.06%	-
Jun 2020	-	-	-	-0.08%	-	-0.07%	-
Jul 2020	-	-	-	-0.08%	-	-0.07%	-
Aug 2020	-	-	-0.07%	-0.08%	-	-0.07%	-
Sep 2020	-	-	-0.07%	-0.07%	-	-	-
Oct 2020	-0.04%	-0.07%	-0.08%	-	-0.08%	-	-
Nov 2020	-	-0.07%	-0.08%	-0.08%	-	-	-
Dec 2020	-0.05%	-0.08%	-0.08%	-0.08%	-	-	-
Jan 2021	-0.06%	-0.07%	-0.07%	-0.07%	-	-	-
Feb 2021	-0.06%	-0.07%	-0.08%	-0.08%	-	-	-
Mar 2021	-0.06%	-0.07%	-0.08%	-0.09%	-	-	-
Apr 2021	-0.03%	-0.08%	-0.09%	-0.09%	-	-	-
May 2021	-0.06%	-0.07%	-0.08%	-	-	-	-

Month	Ri	R1	R3	R7	R8	R14	R15
Jun 2021	-0.07%	-0.08%	-0.09%	-	-	-	-
Jul 2021	-0.07%	-0.10%	-0.10%	-	-	-	-
Aug 2021	-0.06%	-0.08%	-0.09%	-	-	-	-
Sep 2021	-0.05%	-0.09%	-	-	-	-	-
Oct 2021	-0.07%	-0.08%	-	-	-	-	-

I checked a sample of five HHR differences and five NHH differences present at r7 or later:

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.

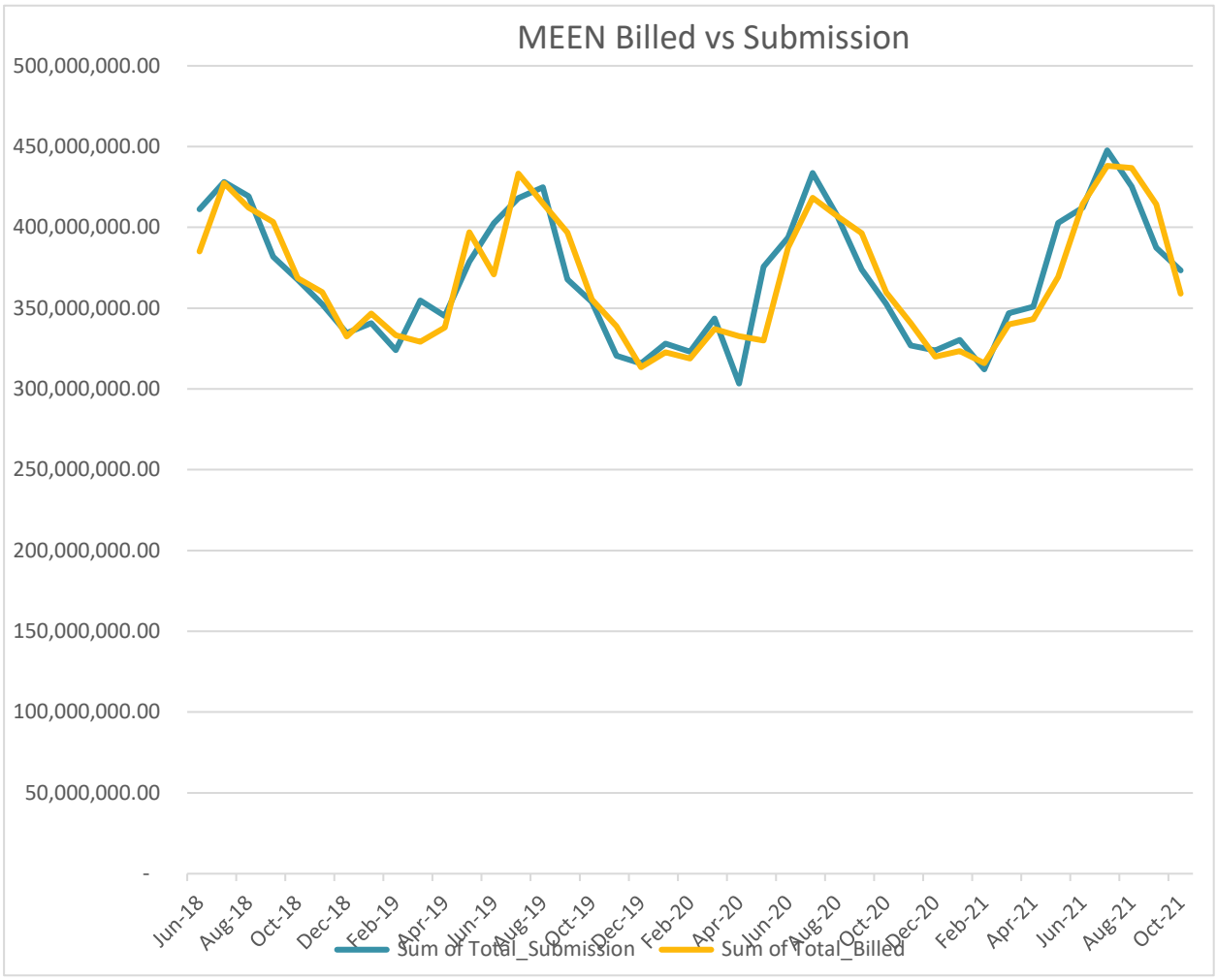
GR130 reports for June 2018 onwards were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

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, billed data is 0.3% higher than submitted data for the year ended October 2021 and 0.1% higher than submission for the two years ended October 2021.

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

The GR090 ICP missing files were examined for all revisions for June 2020 to September 2021. An extreme case sample of the 25 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 technical 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 ten submissions. There were only small rounding differences between the volumes and aggregates. I checked the differences at NSP level for one submission and confirmed that they related to rounding; the aggregates file is rounded to zero decimal places at ICP level, and the volumes are rounded to two decimal places at trading period level. I traced a sample of data from raw data for two ICPs through to HHR aggregates files and there was a match.

Mercury reviews the GR090 ICP missing files on business days five and ten, to identify any issues that require correction. The GR090 ICP missing files were examined for all revisions for June 2020 to October 2021. An extreme case sample of the 25 ICPs missing for the most months were reviewed, and found:

- ICP 0001264717UNC3A was missing from the registry for 60 submissions because the submission type was incorrectly set to NHH as this relates to DUML load submitted as HHR under exemption 233,
- six backdated status changes,
- one relates to the pseudo embedded network for AYI2201 MRPL settled by difference,
- two backdated submission type and profile changes, and
- two examples are still under review.

The issues of incorrect information are recorded as non-compliance in **sections 2.1** and **12.7**.

Audit outcome

Compliant

12. SUBMISSION COMPUTATION

12.1. Daylight saving adjustment (Clause 15.36)

Code reference

Clause 15.36

Code related audit information

The reconciliation participant must provide submission information to the reconciliation manager that is adjusted for NZDT using 1 of the techniques set out in clause 15.36(3) specified by the Authority.

Audit observation

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

Daylight savings processes for generation occur automatically.

A diverse characteristics sample of three 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 previous agent 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 2021 and beginning of daylight savings in September 2021. 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 submission data was checked, and correction processes were checked in **sections 2.1, 8.1** and **8.2**.

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

Audit commentary

NHH and HHR submission validation

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, and
- removal of zero consumption data if there is no open contract for the aggregation factor combination.

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

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:

- a sample of five ICPs with vacant consumption were checked and found to be correctly reported,
- an extreme case sample of the 21 ICPs with the highest amount of inactive consumption were checked – consumption during the disconnected period was reported, but there is sometimes a delay in reporting consumption for disconnected ICPs, which is recorded as non-compliance in **section 9.5**; compliance is recorded in this section because clause 15.4 requires submission for ICPs recorded as "active" in the registry, not "inactive",
- a typical sample of five ICPs with distributed generation with import export metering were checked and the submission was correct however ICPs where the fuel type is not solar are reported against the PV1 profile code rather than EG1 which is recorded as non-compliance in **section 2.1**, and
- a sample of 10 ICPs with unmetered volumes were checked, including standard unmetered and shared unmetered; for one ICP the daily kWh value did not align with the description of load provided by Mercury and three ICPs had a difference in daily kWh between what was reported and the calculation of this load using the description of load provided by Mercury by more than 0.1 kWh per day which is recorded as non-compliance in **section 2.1**.

There are 24 NHH ICPs and one HHR ICP with distributed generation present where submission is not occurring for the generation kWh. In most cases the reason is that import/export metering is not installed.

Further information on calculation of historic estimate is recorded in **section 12.11**, the correction process is documented in **sections 2.1** and **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**.

The Electricity Authority confirmed that there have two alleged breaches relevant to the scope of this audit for Mercury Energy. The first point is relevant to this section and has been closed so it's not recorded in this report. The second point is recorded as non-compliance in **section 12.9.**

Breach ref	Clause breached	Status	Comment
2104MERC1	Part 15 clause 15.2(1)(a)	Closed minor breach	One ICP was missed on the AV090 and AV140 file for the February 2020 revision 14 resulting in under submission of 64,497.92 kWh. Revised files were provided and included in the published allocation results.
2108MERC1	Part 15 clause 15.2(1)	Fact finding	Mercury was advised by EDMI that a 160x multiplier had not been applied to the import and export streams since 19/12/17 when a new meter was installed. Mercury's submission data was incorrect from December 2017 to May 2021.

Generation

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 submission checker is now also used for generation data.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.2 With: Clause 15.4 From: 01-Jan-21 To: 31-Jan-21	At least 25 ICPs have solar generation but submission is not occurring as mentioned in Section 2.1. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
See comments in section 6.1.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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**. Submission validation processes are discussed in **section 12.2**.

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

HHR submission

AV090 and AV140 aggregation was checked in **section 11.4**.

Where an AMI ICP on the HHM profile code is made inactive, the ICP continues to be included in the AV-090 submission file ensuring the part day consumption volumes between midnight the previous day and the time of disconnection is included in the relevant submission.

NHH submissions

SAP automatically creates a zero line where a trading notification is open, but no aggregation line is present. GR170 and AV080 files for nine revisions were compared. All NSPs in the GR170 were included in the AV080 for the nine submissions checked, confirming that zeroing is occurring as required.

I checked the process for NHH to HHR upgrades, and HHR to NHH downgrades, and found all consumption was captured and reported for the ten ICPs checked.

The process for aggregating the AV080 was examined by checking data for NSPs MMT0111 MOPO, CLH0111 ORON, DSH0011 AJML. The data matched for all three NSPs.

Generation

Generation submissions are reviewed as discussed in **section 9.6**.

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 registry list and NSP table were reviewed.

Audit commentary

Mercury is not a local or embedded network owner; 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.

Processes to provide NSP volumes submissions as an agent were reviewed.

Audit commentary

Mercury Energy is not an embedded network owner however the configuration of the transmission system at Atiamuri Power station enables some volumes to be calculated by differencing between generation GIPs and Transmission GXPs. Up to 4 MW may be fed into the local network without being explicitly metered. To enable this volume to be measured and accounted for by the Reconciliation Manager Mercury have created a virtual embedded network with a single 'SB' ICP to allow the Reconciliation Manager to calculate the volume of energy supply the local network (0000001000MR7FD – SB ICP with DFP as the profile).

No late submissions were identified.

Audit outcome

Compliant

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

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

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

Audit observation

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

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.

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 **sections 2.1**, **8.1** and **8.2**.

Audit commentary

There were some submission inaccuracies identified.

- Two ICPs with the incorrect daily unmetered kWh load recorded. This is recorded as non-compliance **sections 2.1** and **3.7.**
- 15 ICPs identified in **sections 3.5, 3.8** and **3.9**, at the incorrect statuses causing submission inaccuracies**.**
- Some switch reads found to be incorrect. As detailed in **section 4.10**:
    - all five ICPs sampled of a possible eight switch moves where the last actual read date is for the date before the switch event date were sent with the incorrect read type of "E" due to a coding error,
    - all ten ICPs sampled of a possible 26 switch moves with last actual read dates more than one day before the event date and an actual switch event read type had the incorrect read type of "A" and should have been sent as "E", and
    - one switch move CS file (ICP 1000596369PCDBA) was sent with the incorrect last read due to a meter switch occurring at the same time as the switch.
- Generation kWh is not being submitted for at least 25 ICPs with distributed generation. Raw data is not yet available, therefore a revision cannot occur, so non-compliance is recorded in **sections 2.1** and **12.2**, but not in this section.
- Non solar fuel generation volume is being submitted using PV1 profile code as Mercury's system is not able to apply more than one profile code per direction.
- The precision of grid generation volumes for Maraetai generation station is insufficient as volumes are reported in increments of 10 kWh.
- There is an issue with ARC Innovations meters when used for HHR settlement. The on-site setup is that a meter pulses into a data storage device, which counts the pulses and "stores" them every 200 pulses which equals 0.1 kWh. There is only one decimal place, so the smallest increment of consumption is 0.1. The issue is made worse for installations with a multiplier, for example if the multiplier is 100, the smallest increment per interval is 10 kWh, which means the accuracy per interval is poor. Unfortunately, this means the HHR data derived from ARC meters is not considered to be accurate in accordance with Clause 15.2. The total kWh per month will be accurate but if volumes are not recorded and reported against the correct trading period, but Mercury may not be charged at the wholesale rate that applied during the trading period when the electricity was consumed. 1,463 active HHR settled category 1 and two HHR settled category 2 meters are affected. There is no way of getting more accurate information, therefore this matter is recorded as non-compliance in **section 2.1**.

- Mercury confirmed five ICPs were bridged to reconnect during the audit period and were later unbridged. All the meters were certified on un-bridging. All five bridged meter corrections / estimation calculations were reviewed. All corrections were correctly applied in SAP.

Mercury reviews the GR090 ICP missing files on business days five and ten, to identify any issues that require correction. The GR090 ICP missing files were examined for all revisions for June 2020 to October 2021. An extreme case sample of the 25 ICPs missing for the most months were reviewed, and found:

- ICP 0001264717UNC3A was missing from the registry for 60 submissions because the submission type was incorrectly set to NHH as this relates to DUML load submitted as HHR under exemption 233,
- six backdated status changes,
- one relates to the pseudo embedded network for AYI2201 MRPL settled by difference,
- two backdated submission type and profile changes, and
- two examples are still under review.

Recommendation	Description	Audited party comment	Remedial action
Review precision of all grid generation bus metering points.	Review number of decimal places retrieved from all bus level grid generation metering points to ensure AV130 submission volumes are submitted to an accuracy of two decimal places.	We will review the data retrieved from the metering points with the meter providers.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.7 With: Clause 15.12 From: 01-Jan-21 To: 31-Dec-21	Inaccurate submission as follows: • precision of grid generation volumes for Maraetai generation station is insufficient as volumes are reported in increments of 10 kWh, • non-solar distributed generation submitted using PV1 profile code, • two ICPs with the incorrect daily kWh value, • 15 ICPs at the incorrect statuses causing submission inaccuracies, • some switch meter reads incorrectly labelled and one incorrect switch read 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 because they are effective most of the time. The impact is assessed to be low as there number of errors is low.

Actions taken to resolve the issue	Completion date	Remedial action status
precision of grid generation volumes for Maraetai generation station is insufficient as volumes are reported in increments of 10 kWh We will investigate the data consistency with the meter provider and request the necessary amendments. **Non-solar distributed generation submitted using PV1 profile code** We will investigate what system changes are required to allow for the correct submission of all distributed generation. **Two ICPs with the incorrect daily kWh value** See comments in section 3.7. **15 ICPs at the incorrect statuses causing submission inaccuracies** See comments in sections 3.5 3.8 3.9. **some switch meter reads incorrectly labelled and one incorrect switch read** See comments in section 4.10.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above.	N/A	

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

Code reference

Clause 4 Schedule 15.2

Code related audit information

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

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

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

Audit observation

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, the SAS system will use all reads for the calculation of historic estimates (HE). This means all interim estimate reads, unvalidated customer reads and move in & out estimates are now flagged as permanent estimates.

This process of treating all estimate reads as permanent estimates after six months is not compliant with this clause as, in most cases there are sufficient validated actual reads available for Mercury to create volume information to enable the historic estimates to be calculated. Also, this clause requires Mercury to use reasonable endeavours for at least 12 months before permanent estimates can be created.

All reads once billed in SAP are locked and cannot be modified unless the invoice is reversed. Any reversed or updated reading (actual or estimate that is reversed in SAP then this change in read is replicated over to the SAS system).

Review of the 14-month revisions showed that some forward estimate remained:

Month	Forward estimate
May-20	338.88
Jun-20	1178.4
Jul-20	1554.74
Total	3072.02

I reviewed all NSPs with forward estimate remaining and found that these relate to recent backdated switch gains where Mercury has not yet obtained a validated actual meter read yet and no recent estimate reads are older than six months for the SAS system to treat as permanent estimates.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 4 Schedule 15.2 From: 01-Jan-21 To: 31-Jan-21	All estimated reads treated as permanent estimates after six months, but the Code requires Mercury to use reasonable endeavours to get meter readings for at least 12 months. Some estimates were not replaced by revision 14. Potential impact: Medium Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**

Medium	The controls are recorded as moderate because in trying to the mitigate risk of large amounts of FE still being present in the 14-month revision this process has impacted the prescribed process for calculating historic estimate (HE) volumes. The impact on settlement and other participants is moderate as the treatment of all estimated reads as permanent estimates for historic estimate calculated does distort the NHH submissions between months impacting the calculation of UFE month to month; therefore, the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
All estimated reads treated as permanent estimates after six months, but the Code requires Mercury to use reasonable endeavours to get meter readings for at least 12 months. Until this audit, our treatment of customer and estimated reads has been considered compliant. We were unaware our current processes did not meet the code requirements for permanent estimates. We have discussed this with the auditors and will begin working on changing our permanent estimate process to become compliant. **Some estimates were not replaced by revision 14.** Backdated switches paired with Covid-19 lockdowns and restrictions meant we were unable to obtain validated meter readings in all instances before R14 however we believe our controls in this area are strong.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
All estimated reads treated as permanent estimates after six months, but the Code requires Mercury to use reasonable endeavours to get meter readings for at least 12 months. We will be raising this with ICT to make the necessary changes to our process around permanent estimates to become compliant.	Dec 22	

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

Code reference

Clause 2 Schedule 15.3

Code related audit information

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

- *half hour volume information for the total metered quantity of electricity for each ICP notified in accordance with clause 11.7(2) for which there is a category 3 or higher metering installation*

(clause 2(1)(a)) for each ICP about which information is provided under clause 11.7(2) for which there is a category 1 or category 2 metering installation (clause 2(1)(ac) to 2(1)(ae)):

a) any half hour volume information for the ICP; or

b) any non-half hour volumes information calculated under clauses 4 to 6 (as applicable).

c) unmetered load quantities for each ICP that has unmetered load associated with it derived from the quantity recorded in the registry against the relevant ICP and the number of days in the period, the distributed unmetered load database, or other sources of relevant information (clause 2(1)l)

- *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 use volume information (clause 2(3))*
- *to calculate volume information the reconciliation participant must apply raw meter data:*
  - *a) for each ICP, the compensation factor that is recorded in the registry (clause 2(4)(a))*
  - *b) for each NSP the compensation factor that is recorded in the metering installations most recent certification report (clause 2(4)(b)).*

Audit observation

Aggregation and content of reconciliation submissions was reviewed, and the registry lists were reviewed.

Audit observation

Compliance with this clause was assessed:

- all active ICPs with meter category 3 or higher have submission type HHR, except 1002125124LCA15 as this ICP does not appear in the AV 140 HHRAGGS file so is being submitted as NHH,
- unmetered load submissions were checked in **section 3.7** and two were incorrect**,**
- profiles requiring certified load control devices are not used,
- no loss or compensation arrangements are required, and
- aggregation of the AV080, AV110, AV090 and AV140 submissions are covered in **sections 13.2, 11.2,** and **11.4** respectively.

Mercury was advised by EDMI that a 160x multiplier had not been applied to the import and export streams between 19 December 2017 and May 2021 when a new meter was installed. Mercury's submission data was incorrect from December 2017 to May 2021. HHR corrections are not able to be applied across all affected consumption periods. Compliance is recorded for the correction process in **section 8.2**, but non-compliance is recorded in this section because the compensation factor in the registry was not used.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.9 With: Clause 2 Schedule 15.3 From: 01-Jan-21 To: 31-Dec-21	ICP 1002125124LCA15 not submitted as HHR where the metering installation category is 3 and the billing capacity is 500 kVA. Some unmetered load calculations were incorrect. ICP 0005011390CNB4E incorrect multiplier applied to HHR volumes by EDMI from December 2017 to July 2021. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because they are effective most of the time. The impact is assessed to be low as the number of errors is low. The audit risk rating is also low for the incorrect compensation factor, as this affected only a single ICP however not all periods have been able to be corrected via available revision cycle. As this was a Meter installation Category 3 ICP this error also had an impact to the seasonal shape files used by all NHH retailers for submission which were incorrect for periods prior to the 7-month washup to correct this error.

Actions taken to resolve the issue	Completion date	Remedial action status
ICP 1002125124LCA15 not submitted as HHR where the metering installation category is 3 and the billing capacity is 500 kVA. This has since been corrected from the date of the meter upgrade. **Some unmetered load calculations were incorrect.** See comments in section 3.7. **ICP 0005011390CNB4E incorrect multiplier applied to HHR volumes by EDMI from December 2017 to July 2021.** Mercury reported a self-breach to the EA when we were notified of this error. We have processed corrections for Jun20 – May21 and are waiting to hear from the EA on our proposed resolution for the Dec17 – May20 period which was outside of the R14 revision cycle.	10/03/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

1002125124LCA15 We were awaiting a new customer contract following a meter upgrade before the account set up could be completed. We have reminded the team to ensure the profile and submission type is updated as necessary regardless of any customer account delays. **0005011390CNB4E** EDMI have provided the below assurance to confirm there are no further instances of this and that this error will not occur in future: *"When this meter was originally installed in 2017, a load check was completed with the installer and the load check matched the installers figures. However, our systems at the time required us to manually apply the multiplier when completing the load check, so this incorrectly applied multiplier was missed.* *Since then, our systems have been upgraded so all multipliers are automatically applied. This means in the future, if a multiplier was to be incorrectly applied, it would become immediately apparent during the load test as the meter was installed.* *I apologies for this not being found until now. However, this issue has now been fixed for this site and the multiplier has been correctly applied. This has been confirmed by comparing the data against the original load test taken back in 2017. A 100% check on all sites has been completed to identify any further issues of this nature, which is how this site was identified originally."*	Completed	

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

A review of nine AV080 submissions was conducted 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.

Audit outcome

Compliant

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

Code reference

Clauses 4 and 5 Schedule 15.3

Code related audit information

The methodology outlined in clause 4 of Schedule 15.3 must be used when preparing 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 Daily Shape Values (SADSV) were applied correctly. The table below shows that some scenarios tested are non-compliant.

Audit commentary

Mercury provided examples of historic estimate calculations which were reviewed. I found that correct shape files had been applied for 'X' direction consumption volumes using the GXP (RPS) seasonal adjusted daily shape values. 'I' direction consumption volumes also uses the GXP (RPS) seasonal shape values for calculating historic estimates instead of the PV1 or EG1 seasonal shape values provided in the same GR-030 PREASL file from the Reconciliation Manager. This incorrect application of Seasonal Adjusted Daily Shape Values results in some embedded generation volumes being apportioned into the incorrect consumption month.

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.

Consumption while inactive will only be reported if the ICP is active for at least part of the read-to-read period that consumption occurs within. The historic estimate process apportions consumption between reads to the days that the ICP was active within the read-to-read period.

Mercury presented two examples for scenario A. One used an estimated move in read as the boundary read for the status change from "inactive" to "active" status – the HE calculation did not match the independent calculation of expected HE volumes. The second example used a meter install read as the boundary read for the status change from "inactive" to "active" status – the HE calculation did match the

independent calculation of expected HE volumes as SAP treats a meter install date as at the beginning of a day.

The first example provided identified that Mercury's system treated a reconnection estimate read as being from the end of the day so the apportionment of HE volumes was one day less than required. The same issue occurred for Scenario C. In both these examples the read in Mercury's systems for the date of reconnection was a Move In estimate read calculated by the SAP system as opposed to a specific reconnection read type.

I also observed that the historic estimate calculation performed where an estimated read is present between two actual reads that exists less than six months apart are being treated as permanent estimates for the purpose of HE calculations. Mercury's system flags estimated reads as permanent estimates after six months to ensure that no FE volumes are present in the final 14 month wash up.

However, where sufficient actual reads are present there is no requirement to treat estimated reads present between two scheduled actual meter reads as permanent estimates as this will distort the HE calculations. Both Scenarios I and M used estimated reads in the calculation of historic estimate consumption when there were sufficient actual reads to perform this calculation.

Non-compliance has been noted against these five scenarios

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.	Non-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.	Non-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.	Non-Compliant (I direction)
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.	Non-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

Test	Scenario	Test expectation	Result
l	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Compliant
m	ICP with a customer read during the month	Customer reads are not used to calculate historic estimate unless appropriately validated.	Non-Compliant.
N	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate.	No instances found
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly.	Compliant

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.11 With: Clauses 4 and 5 Schedule 15.3 From: 01-Jan-21 To: 31-Dec-21	Historic estimate calculations incorrect for five scenarios. Potential impact: Medium Actual impact: Medium Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact is recorded as low overall because: • scenario A and C the incidence is low, and the impact is the volume is apportioned across one fewer day, • scenario G relates to I direction volume being apportioned using the RPS seasonal adjustment daily shape values instead of PV1 / EG1 and the volumes impacted are small, and • scenario I & M – the retrospective treatment of SAP estimate reads as permanent estimates for the calculation of HE; the distortion of apportionment of volume by the inclusion of these estimated reads is moderate when applied across a large number of ICPs.
Actions taken to resolve the issue	**Completion date** / **Remedial action status**

Scenario A – A second example was provided to the auditors to show correct HE calculations. We will be investigating the ICP in the initial example to determine what changes are required to fix this issue. Scenario C – We will be investigating the ICP in this example to determine what changes are required to fix this issue. Scenario G – We will investigate what system changes are required to allow for the correct submission of all distributed generation. Scenario I & M – Until this audit, our treatment of estimated and customer reads has been considered compliant and our examples provided for HE scenarios I & M have also been considered compliant. We were unaware our current processes did not meet the code requirements for permanent estimates. We have discussed this with the auditors and will begin working on changing our permanent estimate process to become compliant.	Dec 22	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Scenario A & C – Upon completion of our investigation, we will liaise with our ICT team to implement any required changes to ensure consumption is calculated and apportioned correctly. Scenario G – We will investigate what system changes are required to allow for the correct submission of all distributed generation. Scenario I & M – We will liaise with our ICT team to implement the required changes to ensure our processes around permanent estimates are compliant.	Dec 22	

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, or
- 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. However, this factoring process is reliant of the seasonal adjustment daily shape values being consistent year on year and the mass transition of ICPs with AMI meters from NHH to HHR submission has meant these SADSV files are no longer consistent as the population of ICPs these files relate to is no longer the same. Also, it was observed that where an ICP changes balancing area (for example an ICP transitions from a local network to become part of an embedded network) within this 2-year period this factoring process will apply a historic factor relating to the old balancing areas as opposed to the current balancing area factor.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 6 Schedule 15.3	Review the use of seasonal adjustment daily shape values to apply a seasonal factor to forward estimate volumes.	We will investigate the possibility of applying a seasonal factor to FE volumes.	Investigating

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.

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

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total
Jan 2020	1	1	2	2	314
Feb 2020	0	1	1	1	317
Mar 2020	0	0	0	0	318
Apr 2020	2	1	1	1	319
May 2020	1	2	1	1	319
Jun 2020	2	1	1	1	323
Jul 2020	1	2	2	2	323

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total
Jan 2020	1	1	2	2	314
Feb 2020	0	1	1	1	317
Aug 2020	1	0	0	0	324
Sep 2020	0	0	0		326
Oct 2020	3	1	1		326
Nov 2020	1	2	2		327
Dec 2020	2	2	2		328
Jan 2021	1	1	1		330
Feb 2021	1	1	1		331
Mar 2021	0	0	0		331
Apr 2021	0	0			332
May 2021	0	2			332
Jun 2021	0	0			335
Jul 2021	0	1			339
Aug 2021	0				342
Sep 2021	0				346

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Jan 2020	0.37%	-0.60%	-0.71%	-0.67%
Feb 2020	2.05%	-0.07%	0.14%	0.17%
Mar 2020	3.65%	0.40%	0.13%	0.18%

Month	Revision 1	Revision 3	Revision 7	Revision 14
Apr 2020	7.93%	4.68%	4.32%	4.36%
May 2020	3.10%	0.29%	0.18%	0.19%
Jun 2020	3.44%	1.55%	1.50%	1.55%
Jul 2020	0.72%	-1.09%	-1.25%	-1.29%
Aug 2020	1.05%	-0.71%	-0.76%	-0.86%
Sep 2020	1.52%	0.19%	0.09%	
Oct 2020	1.72%	0.92%	0.79%	
Nov 2020	0.99%	0.67%	0.44%	
Dec 2020	0.20%	-0.73%	-0.80%	
Jan 2021	1.12%	-0.35%	-0.65%	
Feb 2021	0.06%	0.09%	-0.24%	
Mar 2021	-1.45%	-1.41%	-1.44%	
Apr 2021	-4.46%	-3.50%		
May 2021	-4.69%	-4.44%		
Jun 2021	-1.70%	-0.21%		
Jul 2021	-1.94%	-0.47%		
Aug 2021	-0.58%			
Sep 2021	0.18%			

I checked all differences over the thresholds after December 2020. The differences related to:

- commercial sites switching in and forward estimates being higher or lower than the actual reads received, and
- 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: 01-Jan-21 To: 31-Dec-21	The accuracy threshold was not met for all months and revisions. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	Controls are rated as moderate, as they are sufficient to ensure data is within the accuracy threshold most of the time. The audit risk rating is medium as the initial forward estimates for some ICP that have transitioned to embedded networks were greater than the Gateway volumes for the associated embedded network causing distorted UFE allocations amongst all retailers for the embedded networks concerned. Forward estimates are washed up through the revision process once a validated actual reading is available.

Actions taken to resolve the issue	Completion date	Remedial action status
We believe that we have strong controls in place as shown by high attainment percentages across the board. Processes remain in place to correct data as actual data is obtained and submissions are corrected via the washup process. Elements of the non-compliance such as irregular balancing area shapes are outside the control of Mercury and as such should not be contributing towards our rating.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Mercury uses the industry profile shape as a default however we don't always receive the profile shapes for the new embedded networks. Mercury has recently changed the process where no profile shape is available to use a ratio factoring to ensure data in not over/under reported.	Dec 21	

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

Code reference

Clause 7 Schedule 15.3

Code related audit information

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

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

Audit observation

The event detail report was reviewed to identify ICPs with profile changes. All changes identified were upgrades or downgrades.

A 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 ten profile changes, and they all had an actual reading at 23.59.59 the day before the profile change and the new profile came into effect at 0.00am the following day.

Audit outcome

Compliant

13. SUBMISSION FORMAT AND TIMING

13.1. Provision of submission information to the RM (Clause 8 Schedule 15.3)

Code reference

Clause 8 Schedule 15.3

Code related audit information

For each category 3 of higher metering installation, a reconciliation participant must provide half hour submission information to the reconciliation manager.

For each category 1 or category 2 metering installation, a reconciliation participant must provide to the reconciliation manager:

- *Half hour submission information; or*
- *Non half hour submission information; or*
- *A combination of half hour submission information and non-half hour submission information*

However, a reconciliation participant may instead use a profile if:

- *The reconciliation participant is using a profile approved in accordance with clause Schedule 15.5; and*
- *The approved profile allows the reconciliation participant to provide half hour submission information from a non-half hour metering installation; and*
- *The reconciliation participant provides submission information that complies with the requirements set out in the approved profile.*

Half hour submission information provided to the reconciliation manager must be aggregated to the following levels:

- *NSP code*
- *reconciliation type*
- *profile*
- *loss category code*
- *flow direction*
- *dedicated NSP*
- *trading period*

The non-half hour submission information that a reconciliation participant submits must be aggregated to the following levels:

- *NSP code*
- *reconciliation type*
- *profile*
- *loss category code*
- *flow direction*
- *dedicated NSP*
- *consumption period or day*

Audit observation

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

No report aggregation discrepancies were identified. Submission information is provided to the reconciliation manager in the appropriate format and is aggregated to the following level:

- NSP code,
- reconciliation type,
- profile,
- loss category code,
- flow direction,
- dedicated NSP, and
- trading period for half hour metered ICPs and consumption period or day for all other ICPs.

The submitted data was also compared to billed data and appeared reasonable.

Audit outcome

Compliant

13.2. 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)l).*

Audit observation

The timeliness of submissions of historic estimate was reviewed in **section 12.2**.

I reviewed nine months of AV080 reports to determine whether historic estimate requirements were met.

Audit commentary

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

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
May 2020	-	-	409	410
Jun 2020	-	-	408	411
Jul 2020	-	-	411	414
Dec 2020	-	415	-	416
Jan 2021	-	418	-	418
Feb 2021	-	420	-	420
Apr 2021	386	-	-	421
May 2021	396	-	-	422
Jun 2021	396			426

The table below shows that the percentage HE at a summary level is above the required targets.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
May 2020	-	-	100.00%
Jun 2020	-	-	100.00%
Jul 2020	-	-	100.00%
Dec 2020	-	99.99%	-
Jan 2021	-	99.98%	-
Feb 2021	-	99.99%	-
Apr 2021	94.34%	-	-
May 2021	95.24%	-	-
Jun 2021	94.92%	-	-

I checked all NSPs with less than 100% historic estimate at revision 14, the one NSP with less than 90% historic estimate at revision 7, and 30 NSPs with less than 80% historic estimate at revision 3. It is clear that Covid lockdowns and distancing requirements have had an adverse impact to meter read attainment and therefore HE proportion at the 3-month mark.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 13.2 With: Clause 10 of Schedule 15.3 From: May-20 to Jul-20 r14, Dec-20 r7, and Apr-21 to Jun-21 r3	Historic estimate thresholds were not met for some revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong as 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
Covid-19 lockdowns and restrictions have had an impact on our read attainment which in turn has affected our revision targets. Our current processes and controls are strong.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Our current processes are strong however we are continuously looking at ways to improve read attainment.	Ongoing	

13.3. 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 5, the second digit is rounded up, and

If the digit to the right of the second decimal place is less than 5, the second digit is unchanged.

Audit observation

I reviewed the rounding of data on the AV080, AV090, AV130 and AV140 and reports as part of the aggregation checks.

Audit commentary

Data is rounded to no more than two decimal places.

Audit outcome

Compliant

14. GLOSSARY

CS breach for transfer switch	CS arrival date is more than 3 business days after receipt of the NT where the CS arrives immediately after the NT.
E2 breach for switch move	NT Proposed Transfer Date and CS Actual Transfer date do not match; AND CS Actual Transfer Date is a) earlier than the NT Proposed Transfer Date; OR b) more than 10 business days after receipt of the NT.
E2 breach for transfer switch	CS Actual Transfer Date is more than 10 business days after receipt of the NT.
ET breach for switch move	AN Expected Transfer Date is earlier than the NT Proposed Transfer Date; OR AN Expected Transfer Date is more than 10 business days after NT arrival date
NA breach	NW arrival date is more than 2 calendar months after the CS Actual Transfer Date.
PT breach	NT Proposed Transfer Date is more than 90 days before the NT arrival date; or if the NT Proposed Transfer Date is: a) before the arrival date of the NT; and b) In a different month from the arrival month of the NT; and c) Is different from the AN Expected Transfer Date
RR breach	RR arrival date is more than 4 calendar months from the CS Actual Transfer Date.
SR breach	NW arrival date is more than 10 business days after the initial NW for the same trader requesting the withdrawal. The trader sending the corresponding AW (either accepting or rejecting the withdrawal) only receives a breach on the AW if it is sent more than 5 days after the latest NW as in the original rule.
T2 breach for switch move	CS arrival date is more than 5 business days after receipt of the NT AND, before delivery of the CS No NW notice has been provided, AND (no AN notice has been provided OR an notice is provided, and the NT Proposed Transfer Date matches the AN expected Transfer Date).
WR breach	An or CS arrival date (whichever is applicable, may be one or both) are delivered by the losing Trader more than 2 business days of the arrival date of the AW rejecting the withdrawal; AND a subsequent NW is not provided before delivery of the AN or CS.

CONCLUSION

The audit identified 39 non-compliances and 10 recommendations are made. Additional emphasis was placed on the accuracy and controls with regard to the management of AMI data and processes, which has resulted in a small number of additional non-compliances.

Data collection and reconciliation

The main data collection and reconciliation related issues are as follows:

- there are still 1,469 HHR settled ICPs where the interval data from ARC Innovations is inaccurate, this has increased from 1,463 during the previous audit; two of these ICPs have compensation factors of 100, meaning the smallest possible increment per interval is 10 kWh,
- five historic estimate scenarios were not compliant, mainly due to the incorrect application of meter readings causing incorrect apportionment of consumption information,
- all estimated meter readings and customer meter readings are changed to permanent estimates at the 6-month point, which does not achieve compliance with the Code requirement to use reasonable endeavours to get meter readings for at least 12 months prior to changing estimates to permanent estimates; this can lead to incorrect apportionment of consumption information,
- submission errors were found with six of the 12 distributed unmetered load databases; Mercury is making sound progress with remedial actions with all of these, including the telecommunication equipment database which has been audited and is due to be audited again in April 2022, and
- at least 25 ICPs have distributed generation but submission is not occurring for the generation kWh; in most cases, this is due to the appropriate metering not yet being in place.

Switching and registry management

This audit found further automation of processes specifically in relation to the automation of the new connections process which have caused the level of non-compliance to increase. A material change should have been undertaken before this went live. It is believed that the bugs in this area have been resolved and performance is expected to return to previous levels. There has also been a change of staff in the new connections area which further impacted performance. The team is back to full strength, and this will also assist with compliance being improved.

The management of ICPs for reconnections and disconnections is consistent and compliance in this area is good overall. I have recommended that ICPs where the meters have been returned to the MEP and are then moved to the "inactive – meter disconnected" be reviewed. These are potentially ICPs that need to be decommissioned but Mercury moves these to this status and waits for the distributor to contact them if a decommissioning is completed. I note that the volume of ICPs in this status has grown from 25 in 2017 to 1,743 ICPs.

The switching area processes are robust, but I note that the automation being used in this area continues to cause issues. It appears that logic is being tweaked but the process to check outcomes needs improvement.

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 86, which results in an indicative audit frequency of three months.

I have considered this result in conjunction with Mercury's responses, and I recommend the next audit is conducted in 14 months.

PARTICIPANT RESPONSE

Mercury would like to thank Steve, Rebecca and Bernie for their time and guidance during the audit process. The clearance of 7 non-compliances from the previous audit demonstrates Mercury's ongoing commitment to improvement.
Extra scrutiny was placed on the AMI space and this has highlighted some issues in processes which had previously been considered compliant. We appreciate the time taken by Veritek to provide clarification and guidance in these areas. We will be looking into our options to ensure code requirements are met for these newly identified non compliances.

Over the next months our focus in the switching area will be:

- Staff retraining and updating process documentation to assist with manual file processing
- Review logic on AN response codes
- Review ADC calculation logic
- Investigate incorrect CS read dates, types and values
- Increase our testing requirements to ensure all system and logic fixes will resolve the respective issue completely without introducing further errors.

In our Metering and Network area, we will be focussing on training new staff and reinstating tasks and process that were deprioritised during a period of staff shortages.
We will be working to establish strong processes to ensure all reporting is regularly reviewed and actioned and that there is full visibility of these tasks being completed. We believe the increased staff capacity in this team will greatly assist in improving our compliance in this area.

In the registry space, we have restarted reviewing the AC020Trader Audit Compliance reporting and will monitor progress on this report on a weekly basis.