ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT

For

MERIDIAN ENERGY LIMITED

Prepared by: Steve Woods and Rebecca Elliot

Date audit commenced: 16 July 2020

Date audit report completed: 15 October 2020

Audit report due date: 18 October 2020

TABLE OF CONTENTS

Executive summary 5
Audit summary 6

Non-compliances 6
Recommendations 15
Issues 15

1. Administrative 16

1.1. Exemptions from Obligations to Comply with Code (Section 11) 16
1.2. Structure of Organisation 17
1.3. Persons involved in this audit 18
1.4. Use of Agents (Clause 15.34) 19
1.5. Hardware and Software 19
1.6. Breaches or Breach Allegations 21
1.7. ICP Data 21
1.8. Authorisation Received 23
1.9. Scope of Audit 24
1.10. Summary of previous audit 26

2. Operational Infrastructure 37

2.1. Relevant information (Clause 10.6, 11.2, 15.2) 37
2.2. Provision of information (Clause 15.35) 46
2.3. Data transmission (Clause 20 Schedule 15.2) 46
2.4. Audit trails (Clause 21 Schedule 15.2) 47
2.5. Retailer responsibility for electricity conveyed - participant obligations (Clause 10.4) 48
2.6. Retailer responsibility for electricity conveyed - access to metering installations (Clause 10.7(2),(4),(5) and (6)) 48
2.7. Physical location of metering installations (Clause 10.35(1)&(2)) 51
2.8. Trader contracts to permit assignment by the Authority (Clause 11.15B) 51
2.9. Connection of an ICP (Clause 10.32) 52
2.10. Temporary Electrical Connection of an ICP (Clause 10.33) 53
2.11. Electrical Connection of Point of Connection (Clause 10.33A) 53
2.12. Arrangements for line function services (Clause 11.16) 56
2.13. Arrangements for metering equipment provision (Clause 10.36) 57

3. Maintaining registry information 58

3.1. Obtaining ICP identifiers (Clause 11.3) 58
3.2. Providing registry information (Clause 11.7(2)) 59
3.3. Changes to registry information (Clause 10 Schedule 11.1) 59
3.4. Trader responsibility for an ICP (Clause 11.18) 65
3.5. Provision of information to the registry manager (Clause 9 Schedule 11.1) 67
3.6. ANZSIC codes (Clause 9 (1(k) of Schedule 11.1) 71
3.7. Changes to unmetered load (Clause 9(1)(f) of Schedule 11.1) 74
3.8. Management of “active” status (Clause 17 Schedule 11.1) 76
3.9. Management of “inactive” status (Clause 19 Schedule 11.1) 79
3.10. ICPs at new or ready status for 24 months (Clause 15 Schedule 11.1) 80

4. Performing customer and embedded generator switching 82

4.1. Inform registry of switch request for ICPs - standard switch (Clause 2 Schedule 11.3) 82

4.2. Losing trader response to switch request and event dates - standard switch (Clauses 3 and 4 Schedule 11.3) 83
4.3. Losing trader must provide final information - standard switch (Clause 5 Schedule 11.3) 84
4.4. Retailers must use same reading - standard switch (Clause 6(1) and 6A Schedule 11.3).....88
4.5. Non-half hour switch event meter reading - standard switch (Clause 6(2) and (3) Schedule 11.3) 90
4.6. Disputes - standard switch (Clause 7 Schedule 11.3) 92
4.7. Gaining trader informs registry of switch request - switch move (Clause 9 Schedule 11.3) ..92
4.8. Losing trader provides information - switch move (Clause 10(1) Schedule 11.3) 93
4.9. Losing trader determines a different date - switch move (Clause 10(2) Schedule 11.3).....96
4.10. Losing trader must provide final information - switch move (Clause 11 Schedule 11.3) 96
4.11. Gaining trader changes to switch meter reading - switch move (Clause 12 Schedule 11.3) 100
4.12. Gaining trader informs registry of switch request - gaining trader switch (Clause 14 Schedule 11.3) 103
4.13. Losing trader provision of information - gaining trader switch (Clause 15 Schedule 11.3) ..105
4.14. Gaining trader to advise the registry manager - gaining trader switch (Clause 16 Schedule 11.3) 105
4.15. Withdrawal of switch requests (Clauses 17 and 18 Schedule 11.3).....107
4.16. Metering information (Clause 21 Schedule 11.3) 109
4.17. Switch saving protection (Clause 11.15AA to 11.15AB) 110

5. Maintenance of unmetered load 112

5.1. Maintaining shared unmetered load (Clause 11.14).....112
5.2. Unmetered threshold (Clause 10.14 (2)(b)) 113
5.3. Unmetered threshold exceeded (Clause 10.14 (5)) 114
5.4. Distributed unmetered load (Clause 11 Schedule 15.3, Clause 15.37B).....116

6. Gathering raw meter data 122

6.1. Electricity conveyed & notification by embedded generators (Clause 10.13, Clause 10.24 and 15.13) 122
6.2. Responsibility for metering at GIP (Clause 10.26 (6), (7) and (8)).....125
6.3. Certification of control devices (Clause 33 Schedule 10.7 and clause 2(2) Schedule 15.3) ..126
6.4. Reporting of defective metering installations (Clause 10.43(2) and (3)) 128
6.5. Collection of information by certified reconciliation participant (Clause 2 Schedule 15.2) .129
6.6. Derivation of meter readings (Clause 3(1), 3(2) and 5 Schedule 15.2) 132
6.7. NHH meter reading application (Clause 6 Schedule 15.2) 134
6.8. Interrogate meters once (Clause 7(1) and (2) Schedule 15.2) 135
6.9. NHH meters interrogated annually (Clause 8(1) and (2) Schedule 15.2).....138
6.10. NHH meters 90% read rate (Clause 9(1) and (2) Schedule 15.2) 140
6.11. NHH meter interrogation log (Clause 10 Schedule 15.2) 142
6.12. HHR data collection (Clause 11(1) Schedule 15.2) 143
6.13. HHR interrogation data requirement (Clause 11(2) Schedule 15.2) 143
6.14. HHR interrogation log requirements (Clause 11(3) Schedule 15.2).....145

7. Storing raw meter data 147

7.1. Trading period duration (Clause 13 Schedule 15.2).....147
7.2. Archiving and storage of raw meter data (Clause 18 Schedule 15.2) 147
7.3. Non metering information collected / archived (Clause 21(5) Schedule 15.2).....149

8. Creating and managing (including validating, estimating, storing, correcting and archiving) volume information.....150

8.1. Correction of NHH meter readings (Clause 19(1) Schedule 15.2).....150

8.2. Correction of HHR metering information (Clause 19(2) Schedule 15.2) 150
8.3. Error and loss compensation arrangements (Clause 19(3) Schedule 15.2) 151
8.4. Correction of HHR and NHH raw meter data (Clause 19(4) and (5) Schedule 15.2) 152

9. Estimating and validating volume information 153

9.1. Identification of readings (Clause 3(3) Schedule 15.2) 153
9.2. Derivation of volume information (Clause 3(4) Schedule 15.2) 155
9.3. Meter data used to derive volume information (Clause 3(5) Schedule 15.2) 155
9.4. Half hour estimates (Clause 15 Schedule 15.2) 157
9.5. NHH metering information data validation (Clause 16 Schedule 15.2) 158
9.6. Electronic meter readings and estimated readings (Clause 17 Schedule 15.2) 162

10. Provision of metering information to the GRID OWNER in accordance with subpart 4 of Part 13 (clause 15.38(1)(f)) 165

10.1. Generators to provide HHR metering information (Clause 13.136) 165
10.2. Unoffered & intermittent generation provision of metering information (Clause 13.137) 165
10.3. Loss adjustment of HHR metering information (Clause 13.138) 166
10.4. Notification of the provision of HHR metering information (Clause 13.140) 166

11. Provision of submission information for reconciliation 167

11.1. Buying and selling notifications (Clause 15.3) 167
11.2. Calculation of ICP days (Clause 15.6) 167
11.3. Electricity supplied information provision to the reconciliation manager (Clause 15.7) 170
11.4. HHR aggregates information provision to the reconciliation manager (Clause 15.8) 172

12. Submission computation 175

12.1. Daylight saving adjustment (Clause 15.36) 175
12.2. Creation of submission information (Clause 15.4) 175
12.3. Allocation of submission information (Clause 15.5) 177
12.4. Grid owner volumes information (Clause 15.9) 178
12.5. Provision of NSP submission information (Clause 15.10) 179
12.6. Grid connected generation (Clause 15.11) 179
12.7. Accuracy of submission information (Clause 15.12) 180
12.8. Permanence of meter readings for reconciliation (Clause 4 Schedule 15.2) 182
12.9. Reconciliation participants to prepare information (Clause 2 Schedule 15.3) 184
12.10. Historical estimates and forward estimates (Clause 3 Schedule 15.3) 185
12.11. Historical estimate process (Clause 4 and 5 Schedule 15.3) 187
12.12. Forward estimate process (Clause 6 Schedule 15.3) 190
12.13. Compulsory meter reading after profile change (Clause 7 Schedule 15.3) 194

13. Submission format and timing 196

13.1. Provision of submission information to the RM (Clause 8 Schedule 15.3) 196
13.2. Reporting resolution (Clause 9 Schedule 15.3) 197
13.3. Historical estimate reporting to RM (Clause 10 Schedule 15.3) 198

Conclusion 202

Participant response 203

EXECUTIVE SUMMARY

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

The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits version 7.1.

Meridian implemented a new system (Flux) prior to the last audit and continues to transfer NHH ICPs from Velocity to Flux.

The MERX trader code is applied for ICPs managed in Flux, and the MERI trader code is applied for all other Meridian ICPs. Unless otherwise specified, the processes and non-compliances described in the report apply to all codes.

Improvements have been made to Flux during the audit period, which has improved switching compliance, specifically the accuracy of switch event meter readings. Improvements are still required to some of the manual processes, such as the incorrect rejection of RR files. Improvements are also required to ensure the correct labelling of readings as estimates or actuals.

Most submission related corrections occurred as expected, but there are some process improvements required to ensure all corrections for bridged meters are processed.

Meridian continues to make improvements to distributed unmetered load databases and processes, however there are still many inaccuracies leading to incorrect submission.

Distributed generation information and processes require improvement. There are a large number of discrepancies leading to generation kWh not being quantified.

This audit of Meridian's systems and processes found 39 (42 last time) non-compliances and makes three (four last time) recommendations. No issues are raised. The future risk rating is 82, which is a minor improvement on 88 recorded in the last audit.

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 83 which results in an indicative audit frequency of three months. I have considered this result in conjunction with Meridian's responses and my recommendation for the next audit date is 12 months to reflect the improvements made and that further improvements are in progress.

The matters raised are shown in the tables below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Relevant information	2.1	11.2 & 15.2	**MERI** Some registry information is incorrect. DUML ICPs 0000545297NR91E, 0000500236NR1F1 and 0000500015NRA63 have the unmetered flag incorrectly set to "N" on the registry. Correction not apportioned to the correct months for one of the 12 ICPs sampled. Metering not yet replaced, therefore correction not made for ICP 0000931760NV71C where the metering is under recording by 18%. Corrections not applied for six of the 11 bridged meters sampled resulting in under submission of 1,783 kWh. Incorrect shape files being used for the WAIK and COUP NSPs resulting in an estimated over submission of 3,000 kWh. Two ICPs allocated to the incorrect NSP. Three downgraded ICPs where NHH volume recorded on 11/02/20 will be submitted for 12/02/20. **MERX** The correction is not for the correct period for ICP 0005758831RN460.	Moderate	Medium	4	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Electricity conveyed	2.6	10.7(2),(4),(5) and (6)	**MERI** MERI has been unable to arrange meter access to 447 ICPs at the request of MEPs as at 26/08/20. Meridian has attempted to gain access to all the affected ICPs and continues to do so. **MERX** MERI has been unable to arrange meter access to 56 ICPs at the request of MEPs as at 26/08/20. Meridian has attempted to gain access to all the affected ICPs and continues to do so.	Strong	Low	1	Identified
Electrical Connection of Point of Connection	2.11	10.33A	**MERI** Seven ICPs were certified later than 5 days after electrical connection. 60 ICPs which had expired and/or interim certification were reconnected. **MERX** Nine ICPs which had expired and/or interim certification were reconnected.	Moderate	Low	2	Identified
Changes to registry information	3.3	10 Schedule 11.1	**MERI** 348 late updates to active status for reconnections. 271 late updates to inactive status for disconnections. 6,015 late trader updates. **MERX** 109 late updates to active status for reconnections.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			20 late updates to inactive status for disconnections. 144 late trader updates.				
Provision of information to the registry manager	3.5	9 Schedule 11.1	**MERI** 503 late updates to active status for new connections. Seven ICPs had incorrect active dates recorded.	Moderate	Low	2	Identified
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	**MERI** Three ICPs with incorrect ANZSIC codes. **MERX** Five ICPs with incorrect ANZSIC codes	Strong	Low	1	Identified
Changes to unmetered load	3.7	9(1)(f) of Schedule 11.1	**MERI** Unmetered load incorrect for eight ICPs.	Moderate	Low	2	Cleared
Management of "active" status	3.8	17 Schedule 11.1	**MERI** • Five reconnections have incorrect active status dates recorded. • 7 new connections had incorrect status dates recorded. • Two ICPs with incorrect statuses. **MERX** • Two ICPs with incorrect statuses.	Moderate	Low	2	Identified
Losing trader must provide final information -	4.3	5 Schedule 11.3	**MERI** 13 late CS files. Average daily consumption is not	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
standard switch			calculated in accordance with the registry functional specification in some instances. **MERX** Nine late CS files. Average daily consumption is not calculated in accordance with the registry functional specification in some instances. At least three CS files had actual readings labelled as estimates. At least one incorrect CS read.				
Retailers must use same reading - standard switch	4.4	Clause 6(1) and 6A Schedule 11.3	**MERI** For one accepted RR the actual reading was recorded as an estimate. 28 late RR files. **MERX** Four late RR files. At least three RR files had estimates labelled as actuals.	Moderate	Low	2	Identified
Non-half hour switch event meter reading - standard switch	4.5	Clause 6(2) and (3) Schedule 11.3	**MERX** An RR for ICP 0000222351UNBFD issued under clause 6(2) and (3) of Schedule 11.3 was invalidly rejected.	Moderate	Low	2	Identified
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	**MERI** One late AN file. **MERX** Two late AN files. Two incorrect AN codes.	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	**MERI** 171 late CS files. Average daily consumption is not calculated in accordance with the registry functional specification in some instances. Estimates labelled as actuals for at least one ICP. **MERX** 38 late CS files. Average daily consumption is not calculated in accordance with the registry functional specification in some instances. At least two CS files had actual readings labelled as estimates. At least four incorrect CS reads.	Moderate	Low	2	Identified
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	**MERI** The RR for ICP 0000137970TR94A was incorrectly rejected. 42 late RR files. **MERX** At least three RR files had estimates labelled as actuals. At least four RRs were incorrectly rejected.	Weak	Low	3	Identified
Gaining trader informs registry of switch request - gaining trader switch	4.12	14 Schedule 11.3	**MERI** Three late NT files.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Gaining trader to advise the registry manager - gaining trader switch	4.14	16 Schedule 11.3	**MERI** Six late CS files.	Moderate	Low	2	Identified
Withdrawal of switch requests	4.15	17 and 18 Schedule 11.3	**MERI** 71 NWs were issued late. **MERX** Three NWs rejected in error. 11 late NW files.	Moderate	Low	2	Identified
Metering information	4.16	21 Schedule 11.3	**MERX** At least five incorrect CS reads.	Moderate	Low	2	Identified
Unmetered threshold exceeded	5.3	10.14 (5)	Nine standard unmetered ICP with annual consumption over 6,000 kWh.	Moderate	Low	2	Identified
Distributed unmetered load	5.4	11 Schedule 15.3, Clause 15.37B & 16A.26	**MERI** Inaccurate submission information for several databases. One distributed unmetered database not yet audited since the DUML audit regime came into effect. Two distributed unmetered database audits overdue. The monthly database extracts used to derive submission from are provided as a snapshot and do not track changes at a daily basis as required by the code.	Moderate	High	6	Identified
Electricity conveyed & notification by	6.1	10.13, 10.24 and 15.13	**MERI** Electricity not quantified from the time generation	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
embedded generators			is installed for up to 50 ICPs. While meters were bridged, energy was not metered and quantified according to the code for 12 ICPs. ICP 0000840407WE388 is calculated by subtraction without an exemption being in place. **MERX** Up to 103 ICPs with an installation type of "B" without the PV1 or EG1 profile.				
Certification of control devices	6.3	Clause 33 Schedule 10.7 and 2(2) Schedule 15.3	**MERI** Seven ICPs had a profile requiring control device certification without a certified control device or an AMI meter installed.	Strong	Low	1	Identified
Collection of information by certified reconciliation participant	6.5	2 Schedule 15.2	Data not collected within the maximum interrogation cycle for two ICPs. Event log not downloaded for ICP 0000657986UN559.	Moderate	Low	2	Identified
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	**MERI** Customer reads are treated as actual reads when they are not validated against a set of actual meter reads from another source in some instances.	Moderate	Low	2	Identified
Interrogate meters once (Clause 7(1) and (2) Schedule 15.2)	6.8	7(1) and (2) Schedule 15.2	**MERI** One ICP was not read during the period of supply and exceptional circumstances were not proven. **MERX**	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			Two of four ICPs sampled were not read during the period of supply and exceptional circumstances were not proven.				
NHH meters interrogated annually	6.9	8(1) and (2) Schedule 15.2	**MERI** Exceptional circumstances and best endeavours were not proven for eight of ten examples checked.	Moderate	Low	2	Identified
NHH meters 90% read rate	6.10	9(1) and (2) Schedule 15.2	**MERI** Exceptional circumstances and best endeavours were not proven for nine of ten examples checked.	Moderate	Low	2	Identified
HHR interrogation data requirement	6.13	11(2) Schedule 15.2	Event log not downloaded during interrogation of ICP 0000657986UN559.	Moderate	Low	2	Identified
Identification of readings	9.1	3(3) Schedule 15.2	Some incorrectly labelled meter readings, as follows: **MERI** At least four ICPs with actual readings labelled as estimates. **MERX** At least six ICPs with estimates labelled as actuals. At least five ICPs with actuals labelled as estimates.	Weak	Low	3	Identified
Meter data used to derive volume information	9.3	3(5) Schedule 15.2	**MERI** Raw meter data is truncated upon receipt and not when volume information is created for Arc and AMS (for Smartco meters) provided reads.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			MERX Raw meter data is truncated upon receipt and not when volume information is created for Arc and AMS (for Smartco meters), Intellihub and WEL network MEP provided reads.				
NHH metering information data validation	9.5	16 Schedule 15.2	Zero consumption not monitored for all ICPs.	Moderate	Low	2	Identified
Calculation of ICP days	11.2	15.6	**MERI** Incorrect ICP days for ICP 1001257822LCC15 submitted against NSP TKV0011 in error. Incorrect ICP days for ICP ICP 0006651984AL7C1 due to the incorrect submission flag on the registry. Where ICP statuses or status dates are recorded incorrectly, incorrect ICP days may be reported.	Moderate	Low	2	Identified
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	Investigating
Allocation of submission information	12.3	15.5	One ICP allocated to the incorrect NSP.	Strong	Low	1	Identified
Accuracy of submission information	12.7	15.7	Some submission information was inaccurate.	Moderate	Medium	4	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Permanence of meter readings for reconciliation	12.8	4 of Schedule 15.2	**MERI** Some estimates not replaced at R14.	Moderate	Low	2	Identified
Historical estimates and forward estimates	12.10	3 of schedule 15.3	Incorrect labelling of HE as FE.	Moderate	Low	2	Identified
Forward estimate process	12.12	6 Schedule 15.3	**MERI** The accuracy threshold was not met for all months and revisions.	Moderate	Low	2	Identified
Historical estimate reporting to RM	13.3	10 Schedule 15.3	**MERI** Historic estimate thresholds were not met for some revisions.	Moderate	Low	2	Identified
Future Risk Rating						82	

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

RECOMMENDATIONS

Subject	Section	Description	Status
Review of registry acknowledgement files	2.1	Consider reviewing the registry acknowledgement files, so that failed registry updates can be identified and resolved promptly.	Identified
Electricity conveyed & notification by embedded generators	6.1	Check whether installations with solar generation and batteries installed should have the PV1 profile.	Identified

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

The Electricity Authority website was checked to confirm any exemptions currently in place for Meridian.

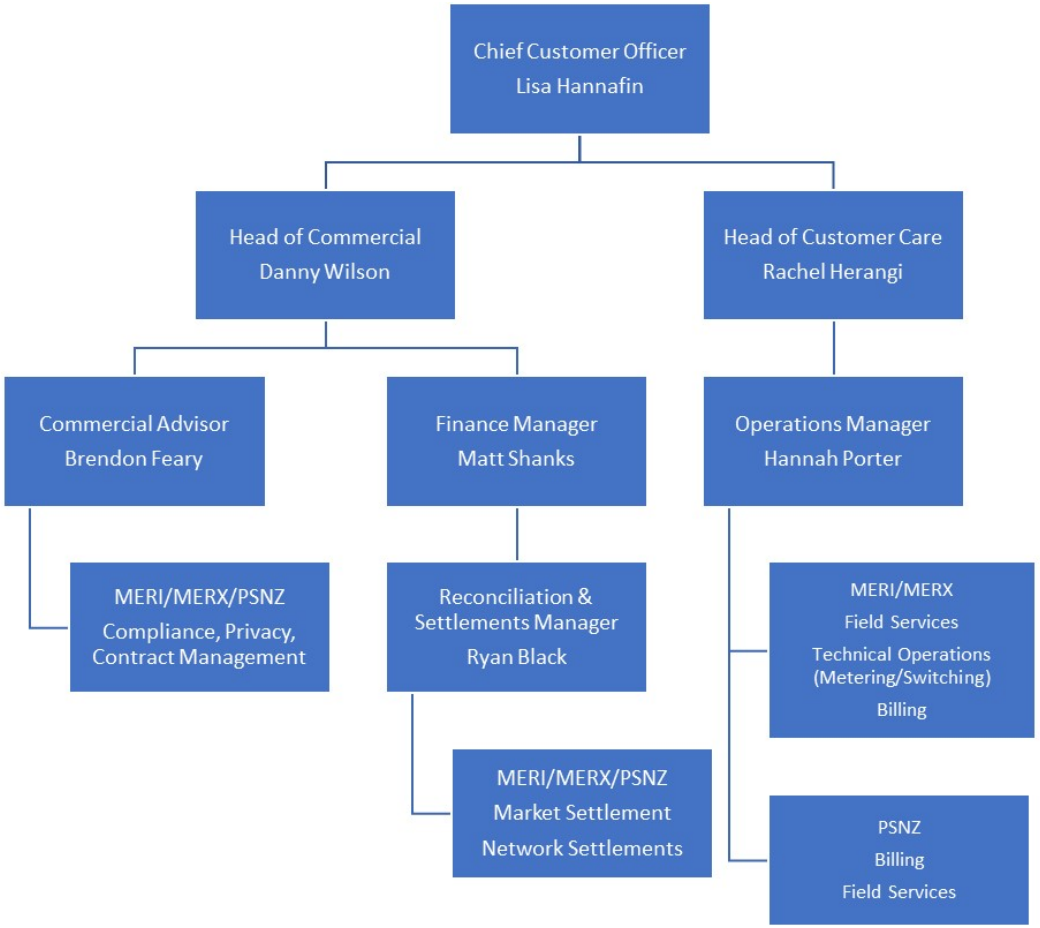
Audit commentary

Exemption 245 allows Meridian to use subtraction to determine submission information for ICP 0009805800AL991. The exemption is in place from 23 December 2016 until the earlier of:

- 30 June 2025,
- the date Accucal ceases to be the MEP,
- the date Meridian ceases to be the trader for the ICP, or
- when embedded generation is injected through any one of the four meters currently used in the calculation of submission information by subtraction.

None of the above events have occurred so the exemption remains in place.

1.2. Structure of Organisation



1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor
Rebecca Elliot	Veritek Limited	Supporting Auditor

Personnel assisting in this audit were:

Name	Title
Amy Cooper	Compliance Officer
Helen Youngman	Energy Data Analyst
Mark Mirasole	Senior Customer Consultant
Alannah Meredith	Team Manager - Tech Support
Damien Rillstone	Team Manager - Tech Support
Pat Baker	Metering Co-ordinator - TOU
Chris Bull	Customer Consultant
Carolyn Bowater	Customer Consultant
Kay McIntosh	Billing SME
Helen Pepping	Operations Support Specialist
Marlaina Rees	Revenue Assurance Specialist
Wendy Jin	Customer Consultant

1.4. Use of Agents (Clause 15.34)

Code reference

Clause 15.34

Code related audit information

A reconciliation participant who uses an agent

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

Audit observation

The use of agents was discussed with Meridian.

Audit commentary

Meridian understands that they remain responsible for meeting their code obligations where agents are used. The relevant agents are identified in **section 1.9**. The agents' compliance was assessed as part of this audit, and their agent audits.

1.5. Hardware and Software

MERX

The Flux system is used for registry management, switching, and reconciliation and is provided and maintained by Flux Federation. Flux Federation operates an Information Security Management System (ISMS), supporting the design, development, provision, operation, and maintenance of the Flux system, that has been certified as compliant with the requirements of ISO/IEC 27001:2013.

MERI

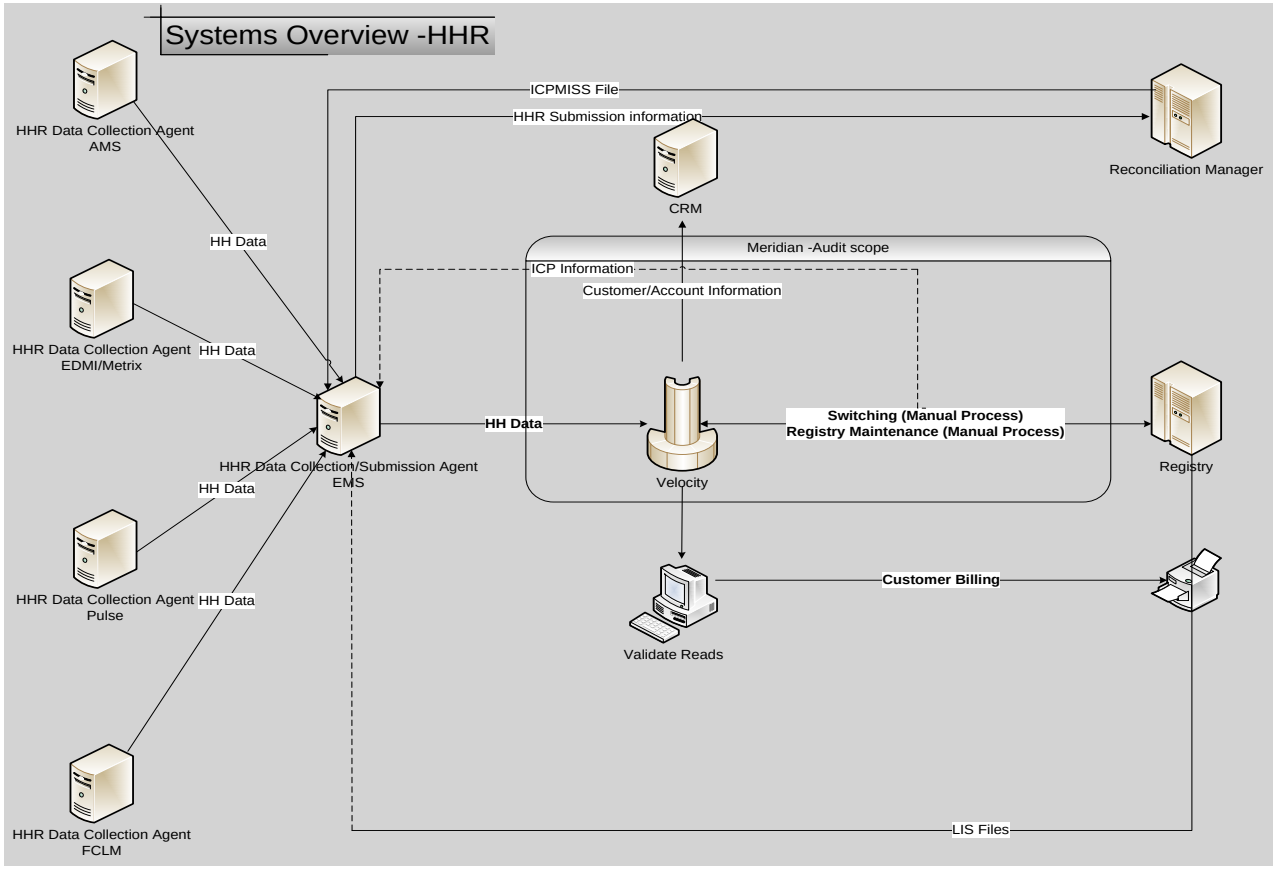
The following are the primary systems used for reconciliation participant activities.

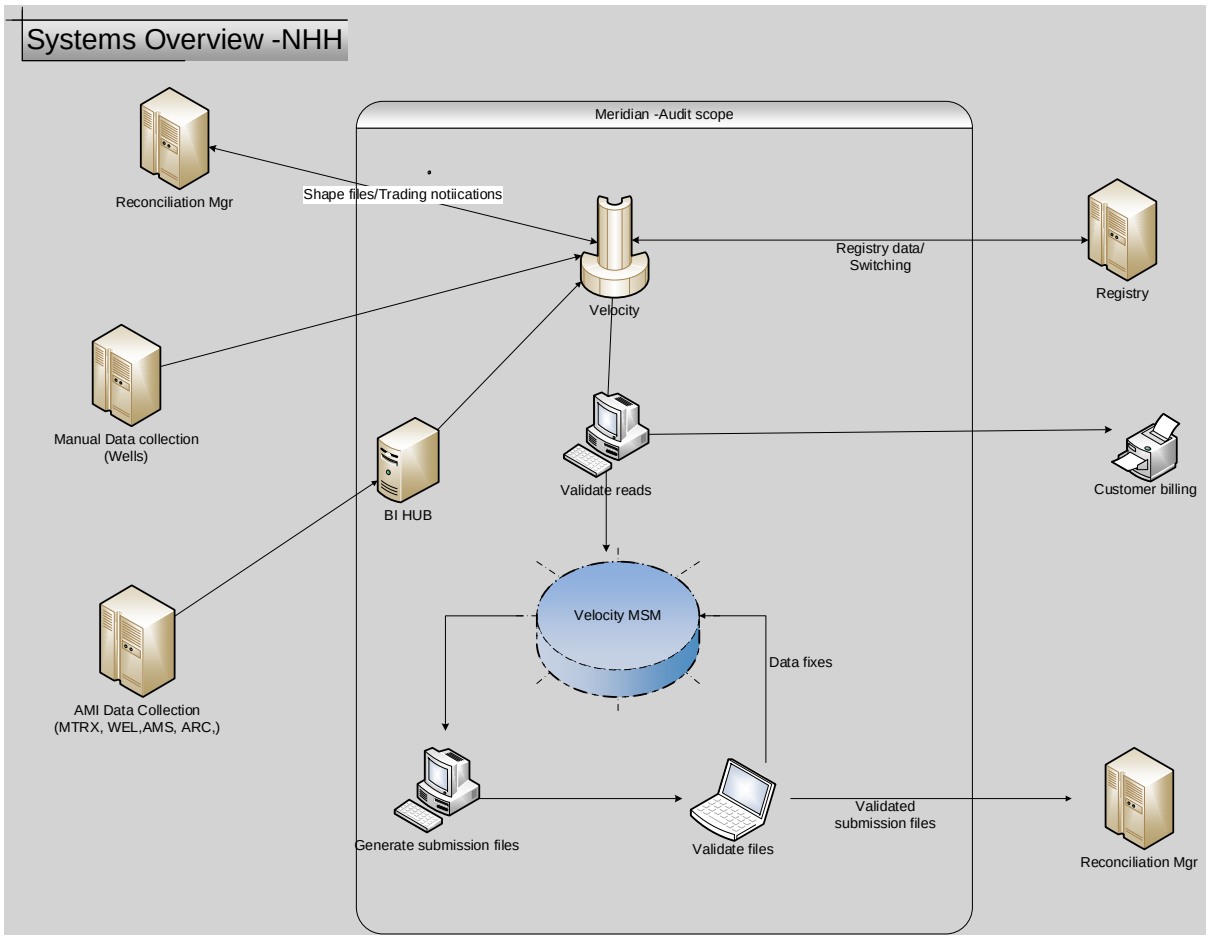
Velocity – used for NHH registry management, NHH meter read validation and storage, NHH switching and computation of NHH submission information. Support for the system is provided by Gentrack and access is restricted using individual logins and passwords.

STARK – used for data collection, validation, and storage of HH data for MERI Generation. Support is provided by Quasar Systems and access is restricted using individual logins and passwords.

Meridian conducts backups of both systems data to tape daily, weekly, monthly, and annually in accordance with good ICT practice.

System diagrams for MERI showing information flows are below.


Systems Overview -HHR
HHR Data Collection Agent AMS
ICPMISS File
HHR Submission information
Reconciliation Manager
CRM
HH Data
Meridian -Audit scope
ICP Information
Customer/Account Information
HHR Data Collection Agent EDMI/Metrix
HH Data
HH Data
Switching (Manual Process)
Registry Maintenance (Manual Process)
Registry
HHR Data Collection/Submission Agent EMS
Velocity
HH Data
HHR Data Collection Agent Pulse
HH Data
Customer Billing
Validate Reads
HHR Data Collection Agent FCLM
LIS Files


Systems Overview -NHH
Meridian -Audit scope
Reconciliation Mgr
Shape files/Trading notiications
Registry data/ Switching
Registry
Velocity
Manual Data collection (Wells)
BI HUB
Validate reads
Customer billing
Velocity MSM
Data fixes
AMI Data Collection (MTRX, WEL,AMS, ARC,)
Generate submission files
Validate files
Validated submission files
Reconciliation Mgr

1.6. Breaches or Breach Allegations

Meridian had no breach allegations relevant to the scope of this audit during the audit period.

1.7. ICP Data

MERI

The active ICPs from Meridian's MERI registry list are summarised by meter category in the table below. 3,628 of the 3,655 active ICPs with a metering category of nine or blank have unmetered load recorded. The 27 ICPs without metering or unmetered load recorded on the 07/07/20 registry list were checked:

- three ICPs have been moved to "ready for decommissioning" or "decommissioned" status,
- one ICP has since had meter details recorded,
- nine ICPs have MEP nominations made and accepted, and are awaiting the update of metering details, and
- 14 ICPs do not have metering or unmetered load recorded.

The AC020 report as at 07/07/20 recorded 38 active ICPs with metering category 9, null or zero which were not unmetered. These ICPs are discussed further in **section 3.4**.

Metering Category	(2020)	(2019)	(2018)	(2017)
1	133,098	198,405	215,064	208,967
2	9,670	8,942	8,234	7,893
3	1,081	927	751	692
4	481	391	313	273
5	69	70	54	57
9	1,124	1,014	993	891
Blank	2,767	2,641	2,387	1,929

Status	Number of ICPs (2020)	Number of ICPs (2019)	Number of ICPs (2018)	Number of ICPs (2017)
Active (2,0)	148,290	212,390	227,796	220,702
Inactive – new connection in progress (1,12)	525	288	377	378
Inactive – electrically disconnected vacant property (1,4)	4,812	4,917	4,986	5,111
Inactive – electrically disconnected remotely by AMI meter (1,7)	73	34	29	20
Inactive – electrically disconnected at pole fuse (1,8)	3	4	5	2

Inactive – electrically disconnected due to meter disconnected (1,9)	2	1	3	-
Inactive – electrically disconnected at meter box fuse (1,10)	1	-	-	-
Inactive – electrically disconnected at meter box switch (1,11)	-	-	1	-
Inactive – electrically disconnected ready for decommissioning (1,6)	70	94	127	168
Inactive – reconciled elsewhere (1,5)	6	6	4	6
Inactive – code not recognised (1,0)	-	-	1	1
Decommissioned (3)	38,012	36,862	35,405	33,779

MERX

The active ICPs from Meridian's MERX registry list are summarised by meter category in the table below.

Metering Category	Number of ICPs (2020)	Number of ICPs (2019)
1	87,916	18,898
2	303	10
3	-	-
4	-	-
5	-	-
9	-	-
Blank	-	-

Status	Number of ICPs (2020)	Number of ICPs (2019)
Active (2,0)	88,219	18,908
Inactive – new connection in progress (1,12)	-	-
Inactive – electrically disconnected vacant property (1,4)	204	1
Inactive – electrically disconnected remotely by AMI meter (1,7)	5	-
Inactive – electrically disconnected at pole fuse (1,8)	-	-

Inactive – electrically disconnected due to meter disconnected (1,9)	1	-
Inactive – electrically disconnected at meter box fuse (1,10)	-	-
Inactive – electrically disconnected at meter box switch (1,11)	-	-
Inactive – electrically disconnected ready for decommissioning (1,6)	1	-
Inactive – reconciled elsewhere (1,5)	-	-
Inactive – code not recognised (1,0)	-	-
Decommissioned (3)	-	1

1.8. Authorisation Received

No letter of authorisation was required.

1.9. Scope of Audit

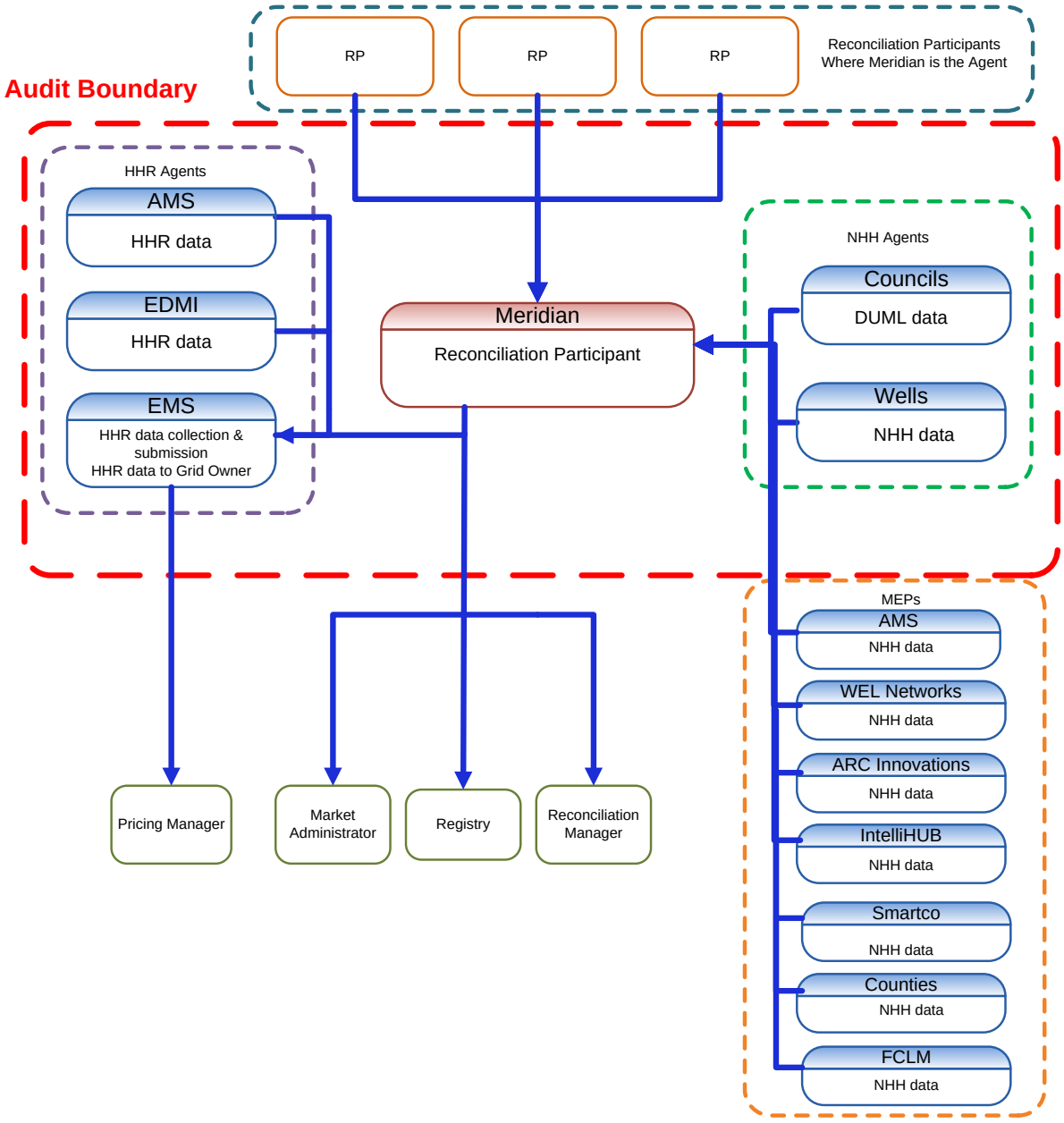
This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of Meridian, to support their application for renewal of certification in accordance with clauses 5 and 7 of schedule 15.1. The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits version 7.1.

The audit was carried out by video conference between 18 and 26 August 2020.

The table below shows the tasks under clause 15.38 of part 15 for which Meridian requires certification, and agents who assist with those tasks.

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

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


Audit Boundary
RP
RP
RP
Reconciliation Participants
Where Meridian is the Agent
HHR Agents
AMS
HHR data
EDMI
HHR data
EMS
HHR data collection & submission
HHR data to Grid Owner
Meridian
Reconciliation Participant
NHH Agents
Councils
DUML data
Wells
NHH data
MEPs
AMS
NHH data
WEL Networks
NHH data
ARC Innovations
NHH data
IntelliHUB
NHH data
Smartco
NHH data
Counties
NHH data
FCLM
NHH data
Pricing Manager
Market Administrator
Registry
Reconciliation Manager

1.10. Summary of previous audit

Meridian provided a copy of their previous audit report conducted in November 2019 by Steve Woods (lead auditor) and Tara Gannon of Veritek Limited. The summary tables below show the statuses of the non-compliances and recommendations raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Relevant information	2.1	11.2 & 15.2	**MERI** Some registry information is incorrect. DUML ICPs 0000545297NR91E, 0000500236NR1F1 and 0000500015NRA63 have the unmetered flag incorrectly set to "N" on the registry. 12 incorrect statuses/status dates identified in the 2018 audit have not yet been corrected. Most of the affected ICPs have now switched out or been decommissioned.	Still existing
Electricity conveyed	2.6	10.7(2),(4),(5) and (6)	**MERI** Meridian has been unable to arrange meter access to 27 ICPs at the request of MEPs as at 24/10/19. Meridian has attempted to gain access to all the affected ICPs and continues to do so.	Still existing
Electrical Connection of Point of Connection	2.11	10.33A	**MERI** 23 ICPs were certified later than 5 days after electrical connection. 100 ICPs which had expired and/or interim certification were reconnected.	Still existing
Changes to registry information	3.3	10 Schedule 11.1	**MERI** 584 late updates to active status for reconnections. 283 late updates to inactive status for disconnections. 6,858 late trader updates. **MERX** Three late updates to active status for reconnections. Two late updates to inactive status for disconnections. Five late trader updates.	Still existing

Subject	Section	Clause	Non-compliance	Status
Provision of information to the registry manager	3.5	9 Schedule 11.1	**MERI** 448 late updates to active status for new connections. ICP 0007190640RNED6 has been confirmed to be connected from 21/06/19, but the status has not been updated to active yet. 15 ICPs had incorrect active dates recorded. Corrections were processed for all affected ICPs except 1002051414LC0BD, 1002054748LCF88 and 0007186223RNCC6.	Still existing
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	**MERI** Six ICPs with category 2 meters and residential ANZSIC codes had the incorrect ANZSIC code applied. The ANZSIC codes were corrected during the audit. 11 ICPs had an incorrect ANZSIC code assigned. Ten were corrected during the audit period, and ICP 0000006490DEACF still has an incorrect code.	Still existing
Management of "active" status	3.8	17 Schedule 11.1	**MERI** Five reconnections have incorrect active status dates recorded. 16 new connections had incorrect status dates recorded. 12 ICPs have been corrected, and four require correction. **MERX** One reconnection has an incorrect status date recorded.	Still existing
Management of "inactive" status	3.9	19 Schedule 11.1	**MERI** One update to inactive ready for decommissioning was processed with an incorrect date, and one update to inactive ready for decommissioning which should have been processed as inactive vacant. Both were corrected during the audit. ICP 0006402933RN7AA's inactive record should have been processed with an event date of 22/12/09 instead of 02/12/10.	Cleared

Subject	Section	Clause	Non-compliance	Status
Inform registry of switch request for ICPs - standard switch	4.1	2 Schedule 11.3	**MERI** ICP 0000010351EA96E had a category three meter and switch type TR was applied instead of HH.	Cleared
Losing trader response to switch request and event dates - standard switch	4.2	3 and 4 Schedule 11.3	**MERX** The AN file for 1001130587UNCD5 was three business days late.	Cleared
Losing trader must provide final information - standard switch	4.3	5 Schedule 11.3	**MERI** The CS file for ICP 0000402279TP7DB was recorded as one business day late. At least eight CS files had incorrect estimated daily kWh. At least seven CS files contained an incorrect switch event read and read type. At least one CS file contained an incorrect switch event read. **MERX** At least seven CS files had incorrect estimated daily kWh. At least three CS files did not have the correct switch event reading applied. In one case the difference between the correct reading and the reading applied was so small there was no impact.	Still existing

Subject	Section	Clause	Non-compliance	Status
Retailers must use same reading - standard switch	4.4	Clause 6(1) and 6A Schedule 11.3	**MERI** For five accepted RRs (0002520170AJ3AB 15/07/19, 0004070580WM2EF 08/08/19, 0004983425ALA8A 15/07/19, 0007164762RN91E 24/01/19 and 1000498793PCF91 11/01/19) the read type was recorded as actual when the agreed switch reading was an estimate. The switch event readings for 0000008456TEC2E 22/01/19, 0000029677CH179 29/07/19 and 0005940982RNCE1 18/07/19 did not reflect the outcome of the RR process. **MERX** For 0006002854RN52B 01/07/19 the read in Flux on the event date did not reflect the outcome of the RR process for one meter register. Meter 208210212/1 showed 49303 estimate in Flux, and the agreed reading was 49304 actual. The RR for 0006788017RNF2D 19/08/19 was not supported by two actual readings. The read type in the RR was incorrectly recorded as actual, when the reading was an estimate.	Still existing
Non-half hour switch event meter reading - standard switch	4.5	Clause 6(2) and (3) Schedule 11.3	**MERX** An RR for ICP 0000212760MPDC7 (switch event date 23/08/19) issued under clause 6(2) and (3) of Schedule 11.3 was invalidly rejected.	Still existing

Subject	Section	Clause	Non-compliance	Status
Gaining trader informs registry of switch request - switch move	4.7	9 Schedule 11.3	**MERI** ICPs 0007173962RN394, 0122019044LC168, 1001150580CK73A and 1001300918LC300 were requested as switch moves although the customer was not moving in from the switch event date, because a certain switch date was required by the customer. ICP 0004560540TCE54's NT was not sent within two business days of pre-conditions being cleared. **MERX** ICPs 0007179906RN32E and 0007187575RNBE3 were requested as switch moves although the customer was not moving in from the switch event date. NTs were sent more than two business days after pre-conditions were cleared for ICPs 0007179906RN32E, 0007187575RNBE3 and 0247536180LCEA0.	Cleared
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	**MERI** The AN file for 0000027328WE348 was one business day late. The ANs for 0000404696MP91D and 0208099496LC406 had a proposed event date before the gaining trader's proposed event date. **MERX** The AN file for 0000125771TR8A5 was one business day late. The AN for 0005781574RNE73 had a proposed event date before the gaining trader's proposed event date.	Still existing

Subject	Section	Clause	Non-compliance	Status
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	**MERI** At least seven CS files had incorrect estimated daily kWh. At least five CS files contained an incorrect switch event read and read type. At least four CS file contained an incorrect switch event read. **MERX** At least six CS files had incorrect estimated daily kWh. At least four CS files did not have the correct switch event reading applied. In one case the difference between the correct reading and the reading applied was so small there was no impact.	Still existing
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	**MERI** For five accepted RRs (0000206150CA6CB 15/02/19, 0000220358TP425 01/07/19, 0000221094MP014 01/03/19, 0000484681CEDE1 12/07/19 and 0000610961UNDDC 09/05/19) the read type was recorded as actual when the agreed switch reading was an estimate. **MERX** ICP 0007162236RN0D9 14/08/19 had an incorrect read type recorded in Flux. The agreed reading was actual but was recorded in Flux as an estimate.	Still existing
Withdrawal of switch requests	4.15	17 and 18 Schedule 11.3	**MERI** At least five NWs were issued in error where a new customer application for an existing Meridian ICP was cancelled. 152 NWs were issued late. **MERX** Three NWs had an incorrect withdrawal reason code applied.	Still existing

Subject	Section	Clause	Non-compliance	Status
Metering information	4.16	21 Schedule 11.3	**MERI** 16 CS files contained an incorrect switch event read. **MERX** Seven CS files contained an incorrect switch event read. In two cases the difference between the correct reading and the reading applied was so small there was no impact**.**	Still existing
Unmetered threshold	5.2	10.14 (2)(b)	Four unmetered ICPs have estimated daily kWh of 3,000-6,000 kWh but have not been confirmed to have an approved load type.	Cleared
Unmetered threshold exceeded	5.3	10.14 (5)	Six standard unmetered ICP with annual consumption over 6,000 kWh.	Still existing
Distributed unmetered load	5.4	11 Schedule 15.3, Clause 15.37B & 16A.26	26 of 29 distributed unmetered databases not compliant. Two distributed unmetered databases not yet audited.	Still existing
Electricity conveyed & notification by embedded generators	6.1	10.13, 10.24 and 15.13	**MERI** Electricity not quantified from the time generation is installed for 36 ICPs. While meters were bridged, energy was not metered and quantified according to the code for 10 ICPs. ICP 0000840407WE388 is calculated by subtraction without an exemption being in place. **MERX** 8 ICPs with solar installed but not being quantified due to import/export metering not being installed.	Still existing
Responsibility for metering at GIP	6.2	10.26 (6), (7) and (8)	One certification update made late for Manapouri.	Cleared
Certification of control devices	6.3	Clause 33 Schedule 10.7 and 2(2) Schedule 15.3	**MERI** Two ICPs had a profile requiring control device certification without a certified control device or an AMI meter installed.	Still existing

Subject	Section	Clause	Non-compliance	Status
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	**MERI** Customer reads are treated as actual reads when they are not validated against a set of actual meter reads from another source in some instances.	Still existing
NHH meter reading application	6.7	6 Schedule 15.2	**MERX** MERX switch event meter readings supplied for the incorrect date.	Still existing
Interrogate meters once (Clause 7(1) and (2) Schedule 15.2)	6.8	7(1) and (2) Schedule 15.2	**MERI** Some ICPs were not read during the period of supply.	Still existing
Correction of NHH meter readings	8.1	19(1) Schedule 15.2	**MERI** Corrections not apportioned to the correct months for at least two ICPs. Some of the corrected consumption for ICP 1926004000CH077 is outside the 14-month window. Metering not yet replaced, therefore correction not made for ICP 0000931760NV71C where the metering is under recording by 18%. Correction not yet made for ICP 0005170923RN2E6, which was over recording by 32.39%. Metering was replaced on 12/03/19. **MERX** The correction is not for the correct period for ICP 0005758831RN460.	Cleared

Subject	Section	Clause	Non-compliance	Status
Identification of readings	9.1	3(3) Schedule 15.2	Customer reads are treated as actual reads when not validated against a set of validated actual reads from another source in some instances. **MERI** 0000206150CA6CB 15/02/19, 0000220358TP425 01/07/19, 0000221094MP014 01/03/19, 0000484681CEDE1 12/07/19 and 0000610961UNDDC 09/05/19 have estimated agreed switch move readings recorded as actuals. 0002520170AJ3AB 15/07/19, 0004070580WM2EF 08/08/19, 0004983425ALA8A 15/07/19, 0007164762RN91E 24/01/19 and 1000498793PCF91 11/01/19 have estimated agreed transfer switch readings recorded as actuals. **MERX** 0006788017RNF2D 19/08/19 has an estimated agreed transfer switch reading recorded as actual. 0007162236RN0D9 14/08/19 has an estimated agreed switch move reading recorded as actual.	Still existing
Meter data used to derive volume information	9.3	3(5) Schedule 15.2	**MERI** Raw meter data is truncated upon receipt and not when volume information is created.	Still existing
NHH metering information data validation	9.5	16 Schedule 15.2	**MERI** Zero consumption not monitored for all ICPs.	Still existing
Buying and selling notifications	11.1	15.3	No trading notification was provided for some profiles.	Still existing
Calculation of ICP days	11.2	15.6	**MERI** Incorrect ICP days for one inactive ICP. Incorrect ICP days for upgrades and downgrades. Where ICP statuses or status dates are recorded incorrectly, incorrect ICP days may be reported.	Still existing

Subject	Section	Clause	Non-compliance	Status
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Still existing
Accuracy of submission information	12.7	15.7	Some submission information was inaccurate.	Still existing
Permanence of meter readings for reconciliation	12.8	4 of Schedule 15.2	**MERI** Some estimates not replaced at R14.	Still existing
Historical estimates and forward estimates	12.10	3 of schedule 15.3	Incorrect labelling of HE as FE.	Still existing
Forward estimate process	12.12	6 Schedule 15.3	**MERI** The accuracy threshold was not met for all months and revisions.	Still existing
Historical estimate reporting to RM	13.3	10 Schedule 15.3	**MERI** Historic estimate thresholds were not met for some revisions.	Still existing

Subject	Section	Recommendation	Status
Review of registry acknowledgement files	2.1	Consider reviewing the registry acknowledgement files, so that failed registry updates can be identified and resolved promptly.	Still existing
Registry validation	2.1	Check that trader-maintained information in Flux is consistent with distributor and MEP maintained information on the registry, such as unmetered load details, and distributed generation details at least monthly. Investigate and resolve any discrepancies.	Cleared

Subject	Section	Recommendation	Status
Management of “active” status	3.8	Compare active dates, initial electrical connection dates and meter certification dates (if metered). Check discrepancies and update Meridian’s active dates as necessary.	Cleared
Monitoring of new and ready ICPs	3.10	I recommend MERX run a registry list six monthly with: Status: 000 or 999 Proposed trader: MERX End date: the day the report is run, and compare the results to the ICPs MERX expects to be at “new” or “ready” status. Any ICPs which appear to have been assigned to MERX in error can then be checked with the distributor.	Cleared

2. OPERATIONAL INFRASTRUCTURE

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

Code reference

Clause 10.6, 11.2, 15.2

Code related audit information

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

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

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

Audit observation

The process to find and correct incorrect information was examined. The registry list files as at 07/07/20 and AC020 trader compliance report for 01/10/19 to 07/07/20 were examined to confirm that information was correct and not misleading. The registry validation process was examined in detail in relation to the achievement of this requirement.

Examples where reading or submission information is not complete and accurate; or is misleading or deceptive are recorded in this section.

Audit commentary

MERI

When information held on the registry is updated in Velocity, the change is automatically sent to the registry. Notification files and acknowledgements received from the registry are loaded into Velocity. If action is required for a notification or acknowledgement item, it is directed to a work queue. Work queue items are actioned and monitored daily.

Velocity data is validated against the registry three times each month.

- A snapshot of distributor and trader data is compared at the beginning of each month. Discrepancies which affect billing or reconciliation are investigated and resolved.
- Prior to initial and wash up submissions a registry list with history is compared to detailed submission data from Velocity. This validation identifies ICPs which are missing from Velocity or the registry during the period being reviewed, mismatched profiles, mismatched NSPs, mismatched networks, missing trader notifications, and generation flow with an inconsistent profile. High and low consumption is also identified and reviewed.

Some additional checks are completed for ANZSIC codes (discussed in **section 3.6**), unmetered load (discussed in **section 3.7**), and distributed generation (discussed in **section 6.1**).

Meridian's controls are generally sound with regard to the identification and correction of information. Analysis of the list file and AC020 returned the following findings:

Issue	2020 Qty	2019 Qty	2018 Qty	2017 Qty	Comments
ICP at status "new connection in progress"	143	53	14	16	See **section 3.9.**

Issue	2020 Qty	2019 Qty	2018 Qty	2017 Qty	Comments
(1,12) or "ready" (0,0) with an initial energisation date populated by the Distributor					
Active date variance with initial electrical connection date	1,069	356	94	81	See **section 3.8.** This includes 1,030 where the IECD is blank.
Incorrect status or status date	1	9	15	-	7 updates to active (see **section 3.8**). One incorrect active event date (see **section 2.11**).
Submission flag discrepancies	2	2	-	2	Both ICPs are HHR with associated NHH unmetered load. Compliance is achieved.
Over Category 2 without a HHR profile	1	-	-	-	ICP 0331837361LCD62 is Category 3 with RPS profile and NHH submission.
Distributed Generation profile not recorded on the registry	36	61	-	-	36 ICPs with generation indicated by the distributor and no generation profile were identified. This is discussed further in **section 6.1**.
Distributed Generation not recorded by MERI for HHR ICPs where installation type is B or G	135	-	-	-	This is discussed further in **section 6.1**.
Active with blank ANZSIC codes	-	1	-	-	See **section 3.6.**
Active with incorrect ANZSIC code applied	-	11	1	2	
Active with ANZSIC "T999" not stated	-	-	1	12	
Active with ANZSIC "T994" don't know	5	4	6	29	
Active with ANZSIC "T995" refused to answer	-	-	2	-	
Active with ANZSIC "T997" response unidentifiable	-	-	1	-	

Issue	2020 Qty	2019 Qty	2018 Qty	2017 Qty	Comments
Active with ANZSIC "T999" not stated	-	-	1	-	
Meter cat 3 or known commercial site with residential ANZSIC code	-	-	-	2	
Active ICPs with blank MEP and no MEP nominated and UML =N	-	-	-	-	All ICPs with a blank MEP were unmetered or had an MEP nomination.
ICPs with Distributor unmetered load populated but Meridian has none	6	12	4	86	Three ICPs were confirmed to be metered, and the distributor's details are incorrect. The remaining three ICPs relate to NZTA Northland DUML ICPs. These being reconciled using the Northpower database information therefore the UML flag is incorrectly set. See **sections 3.7** & **5.4.**
ICPs with standard unmetered load flag Y but load is recorded as zero	113	106	93	2	All 113 are tsunami sirens or residual load ICPs and are correctly recorded with 0 daily unmetered kWh. See **section 3.7.**
ICPs with incorrect unmetered load	4	-	-	-	See **section 3.7.**
ICPs have UML flag N and no shared unmetered load but Distributor field shows shared unmetered load.	-	-	-	-	Compliant

MERX

Flux's daily discrepancy process imports a registry list and compares it to the current values for the corresponding trader-maintained fields in Flux. Where a field MERX maintains is different a status or trader update is automatically created with the appropriate event date and downloaded to a csv file, which is manually moved to the Registry SFTP directory.

Inactive ready for decommissioning (1,6) status is not available in Flux, and this status is manually updated directly on the registry.

MERX does not currently review acknowledgement files from the registry. At present, if a registry update fails it will continue to be resent each day by the daily discrepancy process without the user realising there is an issue.

Description	Recommendation	Audited party comment	Remedial action
Review of registry acknowledgement files	Consider reviewing the registry acknowledgement files, so that failed registry updates can be identified and resolved promptly.	The Registry discrepancy and maintenance processes in Flux will be reviewed for improvements following completion of the migration project.	Identified

Where fields held in Flux maintained by another participant are different, including all GXP related information and distributor-maintained statuses, a notification file is generated by the registry. The file is imported into Flux but does not automatically update the affected fields. Users manually trigger updates to GXPs by running the "update GXP changes" process and can review changes in the notification files using Flux reports to determine any changes required.

MERX now uses the AC020 reports regularly to identify and resolve discrepancies.

Analysis of the list file and AC020 returned the following findings:

Issue	2020 Qty	2019 Qty	Comments
ICP at status "new connection in progress" (1,12) with an initial energisation date populated by the Distributor	-	-	Compliant
Active date variance with initial electrical connection date	-	-	Compliant
Incorrect status or status date	2	1	Two ICPs were not changed to active for the period they were bridged. See **section 3.8.**
Submission flag discrepancies	-	-	Compliant No ICPs with metering categories greater than 2 and the NHH submission flag were identified on the AC020 report.
Distributed Generation profile not recorded on the registry	103	8	There are 103 ICPs with an installation type of "B" without the PV1 or EG1 profile. MERX is currently investigating these. There are 49 ICPs with a fuel type of "other" where the profile is PV1. I have recommended above that Meridian checks these to determine if PV1 is the appropriate profile This is discussed further in **section 6.1**.
Active with blank ANZSIC codes	-	-	Both now resolved. See **section 3.6**
Active with incorrect ANZSIC code applied	-	-	
Active with ANZSIC "T999" not stated	-	-	
Active with ANZSIC "T994" don't know	2	-	

Issue	2020 Qty	2019 Qty	Comments
Active with ANZSIC "T995" refused to answer	-	-	See **section 3.6**
Active with ANZSIC "T997" response unidentifiable	-	-	
Active with ANZSIC "T999" not stated	-	-	
Meter cat 2 or known commercial site with residential ANZSIC code	4	-	
Active ICPs with blank MEP and no MEP nominated and UML =N	-	-	All ICPs with a blank MEP were unmetered or had an MEP nomination.
ICPs with Distributor unmetered load populated but Meridian has none	-	-	Compliant
ICPs with standard unmetered load flag Y but load is recorded as zero	-	-	Compliant
ICPs with incorrect shared unmetered load	-	-	Compliant
ICPs have UML flag N and no shared unmetered load but Distributor field shows shared unmetered load.	-	-	Compliant

Read and volume data accuracy

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

Defective meters	**MERI** Where a defective meter is identified a field services job is raised, and the meter is usually replaced. There are two main correction methods, and a combination of these two methods may be used for a single correction. • Removal of the defective meter on an estimated closing read. Once the read is validated, it will be used in the calculation of historic estimate. An account credit may be applied if the customer is not to be billed for the full correction. • Addition of a market settlement adjustment, where a volume is added for settlement, but is not billed to the customer. If the correction affects more than 14 months, consumption may be spread over the previous 12 months to ensure it is captured for reconciliation. The estimated closing read or market settlement adjustment are calculated based on actual meter data if accurate data can be retrieved, or a best estimate of consumption for the affected period using historic data before the defect occurred, or data from the replacement meter. A template is available to assist staff to calculate accurate and consistent estimates using meter readings from accurate periods. Where load is seasonal, the customer is consulted when preparing the estimate. I reviewed 12 examples of defective meters. For all 12 examples, corrections had been processed and flowed through to reconciliation submissions. If the correction needs to be "spread", a

	request is made to the reconciliation team. I found one example where correction was made not spread across the 14-month revision cycle but instead spread from May 19 - November 19. This was because the reconciliation team were not advised to do so. It appears that notification to the reconciliation team as to what period to spread consumption over has improved during the audit period, but errors can still occur. I rechecked the two Category 2 ICPs with defective metering recorded in the last audit report: • ICP 0000931760NV71C has a failed current transformer and is recording 18% low. Certification was cancelled on 09/08/18, but the metering has not yet been replaced. This has not been resolved as yet. Meridian is following up with the MEP. This is recorded as non-compliance. • ICP 0005170923RN2E6 was reported as over recording by 32.39% from 02/03/16 until 12/03/19. The correction was processed for this ICP but did not process as expected, adding consumption rather than removing it. This was identified by Meridian immediately and manual corrections are now being carried out in the R14 revisions to correct both the original and subsequent incorrect adjustments. Therefore, this correction will be completed correctly. **MERX** The MERI process is followed for defective meters for MERX. One example was provided, and I confirmed that the correction was correctly processed. I rechecked the correction for ICP 0005758831RN460 which was found to have a defective meter in the 2019 audit. The consumption been applied to one day. This has now been spread across the month of September 2019, but not across the period the ICP was defective which was from 22/08/19. This is recorded as non-compliance.
Incorrect multipliers	**MERI** If an ICP with an incorrect multiplier is unbilled the multiplier will be replaced. If the ICP has been billed, then these invoices are reversed and rebilled with the correct multiplier. Weekly reporting is run and reviewed to check for such discrepancies. Nine examples of incorrect multipliers were identified during the audit period. I checked all of these and confirmed that the consumption had been corrected in all nine instances. **MERX** No ICPs with incorrect multipliers were identified during the audit period.
Bridged meters	**MERI** Bridged meters are identified through notifications of load side voltage from MEPs, on return of reconnection paperwork, through consumption validation processes including checks of zero consumption, and when customer queries are received. Corrections for bridged meters are calculated and processed in the same way as corrections for defective meters; consumption is estimated based on the history available. 11 examples of bridged meters were reviewed. In all cases, the meter was either recertified at the time of the removal of the bridge or the meter was replaced with a new certified meter. Corrections occurred for five ICPs but was missed for six ICPs. The processing of correction is operator driven and the operator missed this step in six instances suggesting that the correct process is not being followed by all operators. This will result in 1,783 kWh of under submission for the sample checked. This is recorded as non-compliance. **MERX** The MERI process is followed for MERX. Two bridged meters were identified during the audit period and I confirmed that corrections had been processed for both. Compliance is confirmed.

Consumption while inactive	**MERI** Inactive ICPs with consumption are identified by the revenue assurance team, as discussed in **section 9.5**. A report of inactive meters with potential consumption after the disconnection date was provided and contained 445 ICPs. This report is run and reviewed by the reconciliation team and any genuine consumption after disconnection is validated and submitted. A sample of ten ICPs with disconnected consumption were reviewed and confirmed that the volumes were submitted. One of the ICPs sampled was not returned to "active" status for the period with inactive consumption. Reporting of consumption where an ICP is inactive for part of a period is discussed further in **section 12.11**, and the incorrect statuses are recorded as non-compliance in **section 3.8**. **MERX** These are managed in the same way as the MERI ICPs, but processes are more manual due to the Flux reporting limitations, as discussed in **section 9.5**. A report of inactive meters with consumption after the disconnection date was provided and contained eight ICPs. These were reviewed and found that those genuine consumption volumes were submitted. All statuses were recorded correctly.
Unmetered load corrections	**MERI** Meridian's DUML audits identified some inaccurate databases being used for submission. The EMS agent audit found some incorrect shape files being used for the WAIK and COUP NSPs (Waikato DC database) resulting in an estimated over submission of 3,000 kWh. This is recorded as non-compliance. **MERX** All unmetered load was confirmed to be submitted correctly.

Other submission related issues are as follows:

- ICP 1001257822LCC15 was incorrectly set up against embedded network TKV0011 for the October and November submissions and was corrected by revision 7 to TAK0331.
- Three examples where the ICP was downgraded from HHR to NHH on 12/02/20. The new meters were installed on 11/02/20 but were not installed in Gentrack until 12/02/20 therefore the NHH volume recorded on 11/02/20 will be submitted from 12/02/20.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: 11.2 & 15.2 From: 01-Oct-19 To: 07-Jul-20	**MERI** Some registry information is incorrect. DUML ICPs 0000545297NR91E, 0000500236NR1F1 and 0000500015NRA63 have the unmetered flag incorrectly set to "N" on the registry. Correction not apportioned to the correct months for one of the 12 ICPs sampled. Metering not yet replaced, therefore correction not made for ICP 0000931760NV71C where the metering is under recording by 18%. Corrections not applied for six of the 11 bridged meters sampled resulting in under submission of 1,783 kWh. Incorrect shape files being used for the WAIK and COUP NSPs resulting in an estimated over submission of 3,000 kWh. Two ICPs allocated to the incorrect NSP. Three downgraded ICPs where NHH volume recorded on 11/02/20 will be submitted for 12/02/20. **MERX** The correction is not for the correct period for ICP 0005758831RN460. Potential impact: Medium Actual impact: Medium Audit history: Multiple 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 mitigate the risk of incorrect data most of the time, but there is room for improvement. The audit risk rating is assessed to medium because many of the issues identified have a moderate impact on settlement.

Actions taken to resolve the issue	Completion date	Remedial action status

Corrective and preventative actions in relation to Registry information discrepancies are included in the relevant sections of this report.		Identified
MERI		
DUML ICPs 0000545297NR91E, 0000500236NR1F1 and 0000500015NRA63 are now represented as unmetered on the Registry – the presence of dummy meters was preventing this.	Aug 2020	
ICP 0000931760NV71C - CT's have been replaced at this ICP however no details have been provided by the MEP regarding correction required to historic consumption due to the metering installation being defective. This is being followed up with AMCI.	Sept 2020	
Historic corrections for the 6 bridged meters identified have been applied.	Aug 2020	
Apportionment of the correction identified was as far back in 14mth washup cycle as allowed at the time the error was identified.	N/A	
Incorrect shape files being used for the WAIK and COUP NSPs – Recorder data was corrected to remove the missed off switching. Data has been recalculated and will be washed up.	July 2020	
ICPs allocated to incorrect NSP – Refer comments in section 11.2	N/A	
ICPs downgraded ICPs – system limitations prevent an ICP from being both HH and NHH on the same day. This same limitation is present on the Registry where an ICP cannot change submission type part way through the day. In the case of a downgrade the ICP is HH until the end of the day on which the downgrade took place and NHH from the beginning of the following day. All consumption is submitted.	N/A	
MERX		
ICP 0005758831RN460 – the correction for this ICP was allocated over the time period the ICP was traded by MERX.	N/A	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Defective and bridged meters		
Processes to manage corrections for defective and bridged meters are being refreshed to ensure these are clear for both systems and for where the period of correction spans both systems. The refreshed processes will be rolled out to all relevant staff.	31 Dec 2020	
A quality assurance programme is being developed and will include monitoring to ensure staff are following approved processes.	March 2021	
Incorrect shape files being used for the WAIK and COUP NSPs		
The validation process for streetlight profiles has been reviewed and improvements implemented.	July 2020	

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 several sections in this report.

Audit outcome

Compliant

2.3. Data transmission (Clause 20 Schedule 15.2)

Code reference

Clause 20 Schedule 15.2

Code related audit information

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

Audit observation

I reviewed the method to receive meter reading information.

HHR

All HHR data is collected by EMS, and data transmission was reviewed as part of their agent audit.

NHH (MERI and MERX)

Manual NHH data has been provided by Wells via SFTP. NHH AMI data has been provided by Arc, Intellihub (for Intellihub and Counties Power meters), and AMS (for AMS and Smartco meters) and WEL Networks via SFTP. All other AMI meters are read manually by Wells.

Upon receipt all AMI reads are imported into the BI hub which generates a REA (reading) file which contains readings for all ICPs scheduled to be read on the selected date for all MEPs. This file is imported into Velocity. All AMI reads are retained in the BI Hub.

I traced a diverse sample of reads for 18 NHH ICPs from the source files to Velocity. Readings for six ICPs for Wells were checked, along with readings for two ICPs for each of the following meter reading providers:

- AMS,
- Arc,
- Counties Power,
- Intellihub,

- Smartco, and
- WEL Networks.

Generation

The Stark system retrieves meter information from the generation meters every half hour, and data is also received via SCADA. I reviewed processes to ensure that generation data is transmitted completely and accurately.

I matched the generation data received by Stark to the data received from SCADA for the first six half hours of a day for five generation station meters.

Audit commentary

HHR

HHR data transmission was reviewed as part of EMS' agent audit and found to be compliant.

NHH (MERI and MERX)

NHH meter data is transmitted to Meridian using SFTP. I traced reads for a sample of 20 ICPs from the source files to Velocity. All reads were recorded and labelled correctly.

Generation

The Stark system retrieves meter information from the generation meters every half hour, and data is also received via SCADA. Stark sends an automated email to the reconciliation team where data is missing, or the number of seconds recorded does not match the expected number for the half hour.

I matched the generation data received by Stark to the data received from SCADA for the first six half hours of a day for five generation station meters. In all cases the data matched.

Generation metering and activity is monitored in real time by the generation team, who report any metering or data issues to the reconciliation team.

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

MERI

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

MERX

The Flux system contains a complete and compliant audit trail.

Audit outcome

Compliant

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

Code reference

Clause 10.4

Code related audit information

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

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

Audit observation

I reviewed Meridian's current terms and conditions.

Audit commentary

Meridian'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 Meridian's current terms and conditions and stepped through the compliance process.

Audit commentary

Meridian's contract with their customers includes consent to access for authorised parties for the duration of the contract. Access is most commonly required by the MEP to meet their metering compliance obligations.

Where other parties (such as MEPs) require access to a Meridian ICP, a letter is generated to advise the customer. Meridian provides contact details for the affected ICPs to the MEP in a password protected spreadsheet, and the MEP liaises directly with the customer to arrange access.

Where the customer refuses access, the MEP will advise Meridian and/or the field services paperwork will be returned as a "turn down" and directed to a work queue. Meridian will then send another letter to the customer with further explanation on the reasons access is required and invite the customer to contact Meridian to arrange an alternative solution if necessary.

Meridian has developed revised process for customers who refuse access, which includes letters and phone calls. I checked the most recent reporting and the tables below show the quantity of ICPs where access was not arranged by MERI and MERX including the reasons.

MERI

Reason access not arranged	Quantity
Customer refused meter change.	22
Contractor could not gain access to the meter.	37
Contractor was unable to arrange an appointment with the customer.	268
Contractor could not locate the meter or the property.	6
Network needs to isolate the supply for the meter change.	6
Customer no longer owns property.	2

Meter cannot be replaced due to technical or safety issues with the enclosure or the wiring.	106
Total	447

MERX

Reason access not arranged	Quantity
Customer refused meter change.	8
Contractor could not gain access to the meter.	7
Contractor was unable to arrange an appointment with the customer.	14
Meter cannot be replaced due to technical or safety issues with the enclosure or the wiring.	27
Total	56

Meridian has a detailed communication process in place with customers and makes every attempt to ensure access is available for meter changes, but many of the issues noted above, particularly those related to technical and safety issues, are difficult to resolve if customers will not provide a safe and appropriate metering enclosure.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.6 With: Clause 10.7(2),(4),(5) and (6) From: 01-Oct-19 To: 26-Aug-20	**MERI** MERI has been unable to arrange meter access to 447 ICPs at the request of MEPs as at 26/08/20. Meridian has attempted to gain access to all the affected ICPs and continues to do so. **MERX** MERI has been unable to arrange meter access to 56 ICPs at the request of MEPs as at 26/08/20. Meridian has attempted to gain access to all the affected ICPs and continues to do so. Potential impact: Medium Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Meridian has strong controls in place. This is a technical non-compliance because the code specifies that Meridian "must" provide access, rather than use best or reasonable endeavours to provide access. The impact is low, access is generally required to complete meter changes.

Actions taken to resolve the issue	Completion date	Remedial action status
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will continue with our processes for arranging access to customer premises where this is required.	Ongoing	

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.

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

Audit commentary

Compensation arrangements are in place for some generation stations. I checked the loss calculation inputs for Whitehill, Manapouri and Te Apati. I confirmed that the loss compensation functionality was "enabled" and contained the appropriate inputs of transformer losses and line losses.

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 Meridian's current terms and conditions.

Audit commentary

Meridian'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 process was examined in detail to evaluate the strength of controls. The registry list files as at 07/07/20 and AC020 trader compliance reports for 01/10/19 to 07/07/20 were examined were analysed to confirm whether process compliance and controls are functioning as expected.

Audit commentary

MERI

Meridian claims ICPs at 1,12 ("inactive new connection in progress") status, and the MEP is nominated at the same time.

NHH new connections are managed using Velocity's work queues. HHR new connections are managed manually, and closely monitored.

MERX

New connections are not completed by MERX.

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

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

Audit observation

The new connection process was examined in detail.

Audit commentary

MERI

Meridian claims ICPs at 1,12 ("inactive new connection in progress") status which helps to ensure that the trader is recorded on the registry if an ICP is temporarily electrically connected. No temporary electrical connections were identified.

MERX

New connections are not completed by MERX.

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 reconciliation participant is recorded in the registry as the trader responsible for the ICP*
- *if the ICP has metered load, 1 or more certified metering installations are in place*
- *if the ICP has not previously been electrically connected, the relevant distributor has given written approval of the temporary electrical connection.*

Audit observation

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

The AC020 trader compliance reports for 01/10/19 to 07/07/20 was examined to confirm process compliance and that controls are functioning as expected.

Audit commentary

MERI

The new connection process ensures that an MEP is nominated. Meridian requires meter certification for metered sites as part of the new connection process.

Meridian have a report which identifies meters that have been reconnected which are not certified. The report is intended to be run and reviewed weekly but is not currently monitored. Meridian is investigating how to best use this report to improve compliance and add it to their business as usual processes.

Review of the AC020 audit compliance report found:

- seven late certifications for new connections of metered ICPs, and
- 60 late certifications for reconnections of metered ICPs.

The seven late certifications for new connections were checked and the table below shows the findings. The first two ICPs have incorrectly recorded dates; the certification was not late.

ICP	Electrical connection date	Certification date	No of days late	Comments
0001113227WM8BE	16/04/2020	22/06/2020	45	The event date for the Active status is incorrect.
0001113209WM670	24/01/2020	25/02/2020	21	Completion paperwork received 24/3/20 states hang/liven/cert 24/1/20. Certification date is incorrect.
0000700873MP2D7	12/12/2019	20/12/2019	6	Late certification by AMCI.
0007192455RN073	12/11/19	10/12/19	20	The ATH returned to do load checks, but there is no record of an "insufficient load" certification on 12/11/19.
1500000001SN8B3	01/10/2019	30/10/2019	20	FCLM metering was installed and certified on 01/10/19 without an instruction from Meridian. Meridian had not agreed to be the retailer, had not approved electrical connection and had not nominated FCLM.

				FCLM metering was replaced with AMCI metering on 30/10/19 but the FCLM metering does not appear in the registry. Compliance is achieved for Meridian because certified metering was in place from 01/10/19.
0000046349WE305	25/09/2019	04/10/2019	7	Late certification by AMCI.
0000046368WE215	26/09/2019	04/10/2019	6	Late certification by AMCI.
0000160583CK020	19/09/2019	17/10/2019	20	Late certification by AMCI. An "insufficient load" certification report was provided on 17/10/19 by VEMS, but there is no record of certification on 19/09/19. It was identified recently that the links at the test facility were closed, meaning the metering installation was not recording any kWh despite the installation consuming for 11 months. The Code requires the ATH to perform an additional integrity check of the metering installation wiring and record the results of this check in the certification report. The results of this check are not recorded in the certification report, and the fact that the links were closed indicates this check was not conducted by VEMS.
1002041547LC590	26/07/2019	26/08/2019	21	Late certification by AMCI.

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

MERX

New connections are not completed by MERX.

Review of the AC020 audit compliance report confirmed that there were nine ICPs reconnected where certification did not occur within five business days.

Meridian provided a list of two MERX ICPs which had bridged meters at some time during the audit period. Both were appropriately re-certified by the MEP when they were unbridged.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.11 With: Clause 10.33A From: 01-Oct-19 To: 07-Jul-20	**MERI** Seven ICPs were certified later than 5 days after electrical connection. 60 ICPs which had expired and/or interim certification were reconnected. **MERX** Nine ICPs which had expired and/or interim certification were reconnected. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate. The new connection process has good controls to ensure that MEPs are in place for new connections. Meridian is strengthening their controls for reconnections to ensure that reconnections requiring certification are identified and recertified by the MEPs. The audit risk rating is low as a small proportion of ICPs were affected.

Actions taken to resolve the issue	Completion date	Remedial action status
0000160583CK020 - a defective metering installation investigation report was carried out by AMCI for this ICP. Permanent estimation of consumption has been completed for the period 19/09/19 – 10/08/20 and historic submissions will be corrected through the wash up process.	Sept 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We have good controls in place to ensure meters are certified at the time of initial electrical connection when possible – situations where load is too low to certify are infrequent and processes are in place to ensure certification is completed when it is possible	Ongoing	
Reporting and process is in place to provide a list of reconnected ICPs with uncertified metering to MEPs. This reporting is being modified to include MERX ICPs.	Dec 2020	

2.12. Arrangements for line function services (Clause 11.16)

Code reference

Clause 11.16

Code related audit information

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

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

Audit observation

The process to ensure an arrangement is in place before trading commences on a network was examined. Controls within Velocity and Flux were checked.

Registry list files for 01/10/19 to 07/07/20 were reviewed to identify all the networks MERI and MERX trade on. Arrangements for line function services with these networks were discussed.

Audit commentary

The MERI and MERX codes are both covered by Meridian's existing Use of System Agreements.

Meridian confirmed the existence of either a Use of System Agreement or other trading arrangement for all networks it trades on.

ICPs can only be created or switched in if the network and NSP have been created in Velocity for MERI, or Flux for MERX.

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 before an MEP is assigned was examined. Controls within Velocity and Flux were checked.

Audit commentary

The MERI and MERX codes are both covered by Meridian's existing MEP agreements and arrangements.

Meridian confirmed the existence of either an agreement or arrangement with the MEPs for their ICPs.

ICPs can only be created or switched in if the MEP has been created in Velocity for MERI, or Flux for MERX.

Audit outcome

Compliant

3. MAINTAINING REGISTRY INFORMATION

3.1. Obtaining ICP identifiers (Clause 11.3)

Code reference

Clause 11.3

Code related audit information

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

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

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

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

Audit observation

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

Audit commentary

This requirement is well understood and managed by Meridian.

Audit outcome

Compliant

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

Code reference

Clause 11.7(2)

Code related audit information

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

Audit observation

The new connection process was examined in detail. The registry lists as at 07/07/20 and event detail reports for 01/10/19 to 07/07/20 were analysed to evaluate the updating of the registry in relation to new connections. This clause links directly to **section 3.5** below. The findings for the timeliness of updates are detailed there.

The process to update the registry was reviewed for a diverse sample of 30 new connections.

Audit commentary

MERI

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

I walked through the registry update process for a sample of 30 new connections including HHR and NHH. The accuracy and timeliness of registry updates is discussed in **section 3.5**.

MERX

New connections are not completed by MERX.

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 trader updates, including MEP nominations was reviewed.

The AC020 trader compliance report for 01/10/19 to 07/07/20 was examined. I examined:

- an extreme case sample of 40 late status updates, 45 late trader updates, 25 MEP rejections, and
- five late changes to inactive, 19 late changes to active and 23 late trader updates for MERX.

Audit commentary

The event detail report was examined to confirm the registry is notified within five business days when information referred to in clause 9 of schedule 11.1 changes. ICPs that have been vacant for long periods, whether they are "active" or "inactive", are currently being investigated and statuses changed if

necessary. This project is likely to have contributed to the increase in average business days for changes to "active".

MERI – status updates

Status updates are only processed once Meridian has received confirmation of the correct status and date.

B2B workflow and automation processes send and receive new disconnection and reconnection data for Arc, AMS, Smartco and Intellihub. Full B2B automation is in place for AMS, Arc, and Smartco; Velocity is automatically updated when disconnection and reconnection information is received. Light B2B automation is in place for Intellihub; Velocity is automatically updated with the information that it can populate.

If partial data is provided through the B2B process, a validation work queue item is created. A field services team member checks the data and completes any remaining updates.

Counties Power and FCLM data is sent and received using SFTP. Delta information received via SFTP is imported into Velocity and creates a validation queue item. A field services team member checks and updates the data as necessary, referring to Deltaview (Delta's information portal).

Intellihub disconnection and reconnection information is provided via email.

Disconnection and reconnection service requests are managed using the queue management functionality in Velocity. The field services team monitors these queues to ensure that all service requests are resolved. Meridian's service level agreements require disconnection and reconnection paperwork to be returned to Meridian within two business days of work completion.

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

Status	Year	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
Active	2016	1,037	73%	12.0
	2017	623	80%	12.9
	2018	449	83.2%	9.8
	2019	584	84.89%	7.03
	2020	**348**	**86.65%**	**9.09**

The percentage of reconnections updated within five days has improved from 84.89% to 86.65%. There were 59 reconnected ICPs where the notification date was more than 30 business days. A sample of 20 updates to active more than 30 business days after the event date were checked to determine the reason for the late update:

- one was delayed by late receipt of disconnection paperwork,
- five were due to processing issues following reconnection,
- six were due to correction of status following vacant investigation,
- four were due to identification of self-reconnection during vacant investigations,
- three ICPs switched in with the incorrect status and were subsequently corrected, and
- one ICP had a meter change and a reconnection without a service request from Meridian.

Decommissioning service orders can only be raised for ICPs with an active status. To allow a service order to be processed, the status is returned to active status temporarily from the last status update date. Once

the service order is created, the redundant active status record can be removed. In some cases, the step to remove the active record is missed. During the 2019 audit, four ICPs were identified where the "active" period had not been removed. Two of these ICPs were not corrected and are now decommissioned. The ICPs are 0006802300CAE74 (01/03/10) and 0005706661RN1D7 (07/01/19).

During this audit I identified five ICPs where an "active" period was created but not reversed. The ICPs are:

0000010286EA0E2,
0000025275TR8C6,
0006029485RNE0D,
0006461123RNDB2, and
0033003003WR047.

The incorrect active status updates are recorded as non-compliance in **section 3.8**.

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

Status	Year	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
Inactive	2016	450	81.22%	8.41
	2017	406	95.45%	4.07
	2018	533	90.29%	6.03
	2019	283	96.42%	6.53
	2020	**271**	**95.50%**	**5.42**

The percentage of disconnections updated within five days is similar to the last audit at 95.50%. 99 late updates were not processed within 30 business days of the event date; 36 of these were updates to "ready for decommissioning" status.

I checked 20 late updates for changes to inactive vacant and inactive ready for decommissioning. I found the following:

- nine updates were late due to late field notification,
- there were three examples of processing issues, and
- in eight cases, Meridian had no knowledge of that disconnection had occurred and the status was changed once the disconnection was identified.

MERI – trader updates

The compliance percentage has improved during the audit period. 1,980 late updates were not processed within 30 business days of the event date. 7,719 of these were ANZSIC code changes to align with the requirement to assign codes to the customer not the ICP.

Code	Year	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
MERI	2018	5,691	71.95%	18.50
	2019	6,858	63.93%	6.94
	2020	**6,015**	**87.60%**	**10.95**

HHR MEP nominations

The MEP nomination process for HHR ICPs is manual and managed directly on the registry. I checked all eight late MEP nominations which were made over five business days after the event date and found the most common issue was late notification of metering details.

NHH MEP nominations

There have been no bulk meter roll outs during the audit period. Bulk roll outs are carefully managed and tracked to ensure that the correct MEP is nominated.

Controls are in place to improve the timeliness of MEP nominations.

- A daily report is reviewed to identify meter service requests raised the previous business day which may require an MEP change, such as meter replacements. The field services team raise MEP nominations as required based on the findings of their daily review.
- AMS also provides a weekly report showing any ICPs where they have installed metering for Meridian but have not received an MEP nomination. This report identifies ICPs changing from Arc to AMS, which Meridian would not otherwise be aware of, and ICPs where the MEP nomination trader record has been replaced with another trader update (e.g. to correct a profile) before the MEP has accepted the nomination.

I checked a sample of ten late MEP nominations which were made over 30 business days after the event date, and found they were all related to downgrades from HHR to NHH where the submission fields were also changed. Late field advice led to these late updates.

Trader updates to unmetered load details

I checked six late updates and they were all for corrections to unmetered load details. The late updates were accurately processed from the correct event date.

Trader updates to profiles

I checked five late updates to profiles, three were changes from SL2 to RPS because no shape files were provided by the profile owner. One was a change from PTM to RPS because the shape file is no longer being supplied by the profile owner. One was a correction.

Trader updates to submission types

I checked 16 late updates to submission types and found they were due to corrections following downgrades.

Trader updates to ANZSIC codes

I checked 12 late updates to ANZSIC codes and found they were caused by backdated sign ups and switch withdrawals. The late updates were accurately processed from the correct event date.

MERX – status updates

Status updates are only processed once Meridian has received confirmation of the correct status and date.

B2B workflow and light automation processes are used for AMS; returned paperwork is "stamped" onto the corresponding field services job in Flux. I observed this process in operation and viewed the job completion notes in the system. When paperwork is received an item is added to a work queue, where a user will review the paperwork and update the relevant fields in Flux. For other field services providers paperwork is received via email and processed manually with notes added to Flux.

Inactive ready for decommissioning (1,6) status is not available in Flux, and this status is manually updated directly on the registry.

Updated statuses are sent to the registry as part of the daily discrepancy process described in **section 2.1**.

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

Status	Year	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
Active	2019	3	82.35%	3.71
	2020	**109**	**79.96%**	**4.58**
Inactive	2019	2	0.00%	18.00
	2020	**20**	**97.78%**	**1.03**

I checked 19 changes to active status and found the following:

- five were status changes upon switch in and the switches were backdated,
- eight late updates occurred due to the status not being updated manually at the time the reconnection was processed, and
- six were correction of status errors.

The previous report recorded that the status was automatically changed to "active" at the time of switch in, which no longer occurs. Status changes are now made manually.

I checked five late changes to inactive and found the following:

- late paperwork for one ICP,
- manual processing issues for three ICPs, and
- meter could not be located to process a change to "ready for decommissioning", resulting in a delay in processing.

MERX – trader updates

Flux's daily discrepancy process imports a registry list and compares it to the current values for the corresponding fields in Flux. Where the trader details in Flux differ from the registry, a trader update is automatically created with the appropriate event date and downloaded to a csv file, which is manually moved to the Registry SFTP directory.

Code	Year	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
MERX	2019	5	86.11%	2.36
	2020	**144**	**84.04%**	**2.7**

I checked 23 late trader updates and found the following:

- 10 profile changes were made late because they were switches from MERI to MERX, which all occur using the RPS profile, after which there is a bulk upload to change the profile to the correct one - this process is managed daily, but there are often backdated switches, leading to backdated profile changes,
- there were five late ANZSIC code changes as a result of validation, and
- eight MEP nominations were late due to late paperwork following the meter change.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: 10 Schedule 11.1 From: 01-Oct-19 To: 07-Jul-20	**MERI** 348 late updates to active status for reconnections. 271 late updates to inactive status for disconnections. 6,015 late trader updates. **MERX** 109 late updates to active status for reconnections. 20 late updates to inactive status for disconnections. 144 late trader updates. 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 in this area are robust but late notification from other areas of the business or networks shows there is room for improvement. The audit risk rating is low as overall a high percentage of updates are on time.

Actions taken to resolve the issue	Completion date	Remedial action status
All status updates have been processed.	N/A	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
MERI We will continue with our existing controls that ensure Registry information is updated within 5 business days where this is within our control.	Ongoing	
MERX Automated job completion for disconnections and reconnections is currently being developed and is expected to improve timeliness of active and inactive status updates for MERX.	March 2021	

3.4. Trader responsibility for an ICP (Clause 11.18)

Code reference

Clause 11.18

Code related audit information

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

A trader ceases to be responsible for an ICP if:

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

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

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

Audit observation

Retailers responsibility to nominate and record an MEP in the registry

The AC020 trader compliance reports for 01/10/19 to 07/07/20, were examined to confirm whether all active ICPs have an MEP recorded.

The event detail reports for 01/10/19 to 07/07/20 were examined to identify all MEP nominations and their outcome.

ICP decommissioning

The process for the decommissioning of ICPs was examined. A diverse sample of ten decommissioned ICPs for MERI and seven decommissioned ICPs for MERX were checked to prove the process and confirm controls are in place.

Audit commentary

MERI - Retailers responsibility to nominate and record an MEP in the registry

The new connection process is discussed in detail in **sections 2.9** and **3.5**. Meridian claims ICPs at 1,12 ("inactive new connection in progress") status, and the MEP is nominated at the same time. All new connections have an MEP nominated.

The AC020 report as at 07/07/20 recorded 38 active ICPs with metering category 9, null or zero which were not unmetered. All ICPs had metering installed in Velocity; therefore, Meridian is compliant, and the MEPs need to populate metering details.

36 MEP nominations made were rejected. Rejected nominations are directed to a work queue for review. Ten rejected nominations were examined, and found:

- four were reissued and accepted, and
- six were not reissued because either an incorrect MEP had been taken from the lifecycle at the time another trader update was processed (e.g. a profile change), or the incorrect MEP was nominated due to incorrect data entry, and because the MEP rejected the incorrect nomination, no further action was required.

MERI - ICP decommissioning

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

The decommissioning process varies from network to network with some advising Meridian to move the ICP to "ready for decommissioning" status after the event, and Meridian moving the ICP to "ready for decommissioning" before the event for others. Where an Orion ICP requires decommissioning Orion updates the address on the registry, and Meridian runs a weekly registry report to identify the affected ICPs and update their statuses.

Meridian is completing a project to review long term vacant and disconnected sites to try to determine the property owner, and whether the site can be decommissioned. All affected sites are monitored each time a reading is received to determine whether they are consuming.

Decommissioning service orders are raised in Velocity, which are sent to both the distributor and MEP at the same time. Meridian makes an attempt to read the meter at the time of removal and if this is not possible then the last actual meter reading is used. This last actual reading is normally the one taken at the time of de-energisation.

A diverse sample of ten decommissioned ICPs connected to five different networks were examined. In all cases Meridian had advised the MEP that the ICP was to be decommissioned, or the MEP had advised Meridian where the ICP was demolished without Meridian's knowledge. Reads were obtained prior to decommissioning for nine of the ICPs, and for one ICP the site was demolished without Meridian's knowledge and Meridian completed a site visit to attempt to gain a read.

MERX - Retailers responsibility to nominate and record an MEP in the registry

New connections are not completed by MERX.

All ICPs have an MEP recorded. MEP nominations are created in Flux by entering a proposed MEP and effective date and are sent to the registry as part of the registry update process described in **section 2.1**.

Three MN files were rejected due to incorrect nominations. Where a MEP nomination is rejected, Flux creates an exception for review and all exceptions are reviewed daily.

MERX - ICP decommissioning

ICPs that are vacant and active, or inactive are still maintained in Flux.

MERX makes an attempt to read the meter at the time of removal and if this is not possible then the last actual meter reading is used. This last actual reading is normally the one taken at the time of de-energisation. MERX also advises the MEP responsible that the site is to be decommissioned or has been decommissioned, dependant on the distributor's process.

Seven decommissioned ICP were checked. The MEP was notified, and a removal meter reading was obtained, or if the meter could not be located, the previous reading at the time of disconnection or finalisation of the customer was used.

Audit outcome

Compliant

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

Code reference

Clause 9 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

The new connection process was examined in detail.

The process to find and correct incorrect information was examined. The registry list files as at 07/07/20 and AC020 trader compliance reports for 01/10/19 to 07/07/20 were examined to confirm process compliance and that controls are functioning as expected.

An extreme case sample of 20 late status updates for NHH new connections and ten late status updates for HHR new connections were checked.

The accuracy of all status event dates for new connections was checked by comparing the earliest active date, meter certification date (if available) and initial electrical connection date (if available). A sample of discrepancies were checked against supporting information to confirm the correct status date.

Audit commentary

MERI

The new connection process is described in detail in **section 2.9**. MEP nomination occurs when the ICP is at new connection in progress (1,12) status as part of the service request process.

The table below shows the level of compliance compared to earlier years.

Code	Year	ICPs notified greater than 5 days	Percentage on time	Average Business Days between Status Event and Status Input Dates
MERI	2016	69	90%	3.6
	2017	259	82%	3.7
	2018	163	92%	2.7
	2019	448	85.68%	6.20
	2020	**503**	**82.84%**	**5.11**

NHH new connections

Velocity's work-flow processes are used to manage NHH new connection service requests.

B2B workflow and automation processes send and receive new connection data for Arc, AMS, Intellihub and Smartco.

B2B workflow and automation processes send and receive new disconnection and reconnection data for Arc, AMS, Smartco and Intellihub. Full B2B automation is in place for AMS, Arc, and Smartco; Velocity is automatically updated new connection information is received. Light B2B automation is in place for Intellihub; Velocity is automatically updated with the information that it can populate.

If partial data is provided through the B2B process, or a meter is category 2, a validation work queue item is created. A field services team member checks the data (including multipliers for category 2 meters) and completes any remaining updates. I stepped through this validation process and observed examples which had failed validation because of incomplete information, including missing reads and dates. In most cases the information required is present, but not recorded in a field or format where it can easily be extracted by the B2B processes.

Counties Power and FCLM data is sent and received using SFTP Delta information received via SFTP is imported into Velocity and creates a validation queue item. A field services team member checks and updates the data as necessary, referring to Deltaview (Delta's information portal).

Unmetered service requests are sent via email to Orion. Emails received regarding unmetered load are processed manually.

All service requests appear in a work queue and remain open until the job has been completed. Job notes received from contractors are uploaded weekly against the ICPs. The field services team works through the work queue items and follows up as necessary, focussing on the oldest service requests first. Once a service request's progress has been reviewed, the user can reset the date when it will next appear in the work queue for review. Once reset the queue item remains open but will not be visible in the queue until the next review date.

AMS and Intellihub send weekly reports on progress with service requests, and the reasons any jobs are overdue. This information is imported against the affected ICPs in Velocity. I walked through this process and noted that most requests were overdue because the customer's electrician or site was not ready. If a job is deferred three times AMS cancels the service request and requests the electrician contact Meridian when the site will be ready for energisation. The service level agreement in place requires that paperwork be returned to Meridian within two business days of completion.

The timeliness of status updates to active for new connections has declined, 82.84% of status updates to "active" for new connections occurred within five business days. 89 new connections were updated 30 days or more after the event date. A sample of 20 updates to active status made over 30 business days after the event date were checked:

- 13 updates were late due to late receipt of paperwork, and
- seven updates were late due to processing issues.

All the updates checked were processed with the correct status and status date.

I also checked a sample of ten late updates to ANZSIC codes for new connections identified on the AC020 report. I found all the late updates were processed correctly and were delayed by late notification that the new connection had been completed.

A review of the audit compliance report identified 28 ICPs with "new connection in progress" status and 115 ICPs with "ready" status which had an initial electrical connection date recorded. All of these ICPs were checked and I found the following:

- all 115 ICPs with a "ready" status are on the Electricity Ashburton network and are ICPs created at properties where there are two or more points of connection to the network but only one ICP (Electricity Ashburton has created additional ICPs so there is an ICP for each point of connection, but Meridian advised that they have not agreed to be the trader for these additional ICPs),
- One ICP at status 1,12 is also an Electricity Ashburton "ICP split" example,
- 22 ICPs have now been changed to "active",
- ICP 0007194442RN2D4 is being investigated with the MEP because there is a certification record but no notification of electrical connection, and
- four ICPs on the Orion network at 1,12 are not electrically connected and Orion's initial electrical connection dates are incorrect.

HHR New Connections

The HHR new connection process was examined. This process is largely manual due to the complexity of such connections. The progress of HHR new connections is managed closely.

Meridian updates the ICP status to "active" as soon as they confirm that the ICP is active and the metering is recording load, rather than waiting for the metering details to be updated on the registry. The ten latest status updates to active status for HHR new connections were checked and, in all cases, the late update was due to late notification from the MEP.

All the updates checked were processed with the correct status and date.

New connection information accuracy

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 following exceptions were identified:

Exception	Total ICPs	ICPs confirmed to have incorrect updates	Comment
No IECD No meter cert	185	-	
Metered ICP Active date ≠ IECD Active date ≠ meter cert date	3	1	ICP 0000162191CK549 had the status event date changed from 05/02/20 to 20/02/20 but 05/02/20 is the correct date.
Active date ≠ IECD No meter cert date	6	-	Five ICPs were checked and all had the correct "active" event dates.
Active date ≠ IECD Active date = meter cert date	30	1	All 30 ICPs were checked. ICP 0007193597RNFBD had an incorrect "active" status event date of 03/02/20 but this has now been changed to 23/01/20.
Active date = IECD Active date ≠ meter cert date	112	-	A sample of eight ICPs were checked. All were confirmed to have the correct status date and status recorded.
No IECD Active date ≠ meter cert date	11	5	A sample of 10 ICPs were checked. Five had incorrect "active" event dates. The ICPs are: 1002092931LC3FF – should be 24/06/20 1002080648LCC5D – should be 04/05/20 1002080641LC20C – should be 04/05/20 0110011677EL1FD – should be 05/12/19 0110011599ELBDF – should be 17/10/19.

MERX

New connections are not completed by MERX.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.5 With: Clause 9 Schedule 11.1 From: 01-Oct-19 To: 07-Jul-20	**MERI** 503 late updates to active status for new connections. Seven ICPs had incorrect active dates recorded. Potential impact: Medium Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Non-compliance	Description
Low	The controls are rated as moderate, in most cases the registry was updated on time. Where information was late, circumstances beyond Meridian's direct control had contributed to the late update. The audit risk rating is low as the impact to the market of the ICPs not being updated within five business days is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Corrections have been made to active dates identified as incorrect. 115 ICPs created by EASH – we understand the metering installation for these ICPs are currently billed and reconciled under existing ICPs but a "split" is required. AMS and EASH were in discussions re apportionment of costs associated with this work and we are awaiting the outcome.	Oct 2020 Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We are monitoring the AC-020 report to identify discrepancies and correct any active dates incorrectly entered as a result of human error and to identify any ICPs that may have been connected and where no notification has been received.	Ongoing	

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 files as at 07/07/20 and AC020 trader compliance reports for 01/10/19 to 07/07/20 were examined to check ANZSIC codes, including active ICPs with T99 series or blank ANZSIC codes.

To confirm the validity of the ANZSIC codes selected I checked:

- a diverse sample of at least five active ICPs for the top 20 most frequently applied ANZSIC codes for MERI, and
- a diverse sample of at least five (or all) active ICPs per ANZSIC code for MERX.

Audit commentary

MERI

ANZSIC codes are captured at the time the customer switches in or is connected by Meridian.

A report is run regularly to check and update any ICPs with T9 series codes.

The audit compliance report recorded five ICPs with blank or T99 series ANZSIC codes.

Code	Number of active ICPs 2020	Number of active ICPs 2019	Number of active ICPs 2018	Comments
Active with ANZSIC "T999" not stated	-	-	1	Compliant
Active with ANZSIC "T994" don't know	5	4	6	Compliant – three are vacant properties and the ANZSIC code is genuinely unknown. Two are now updated and were timing differences.
Active with ANZSIC "T995" refused to answer	-	-	2	Compliant
Active with ANZSIC "T997" response unidentifiable	-	-	1	Compliant
Active with blank ANZSIC code	-	1	-	Compliant
Total	**5**	**5**	**10**	

19 ICPs with a meter category of 2 or above were recorded with a residential ANZSIC code. I checked all 19 and found the primary customer activity was residential.

I checked 50 ANZSIC codes by comparing them to Google streetview information. Three ICPs appear to have incorrect ANZSIC codes, as recorded in the table below.

ICP	ANZSIC Code	Findings
0000000078TE3E1	A030	Appears to be building supplies not forestry and logging
0000000083CEB78	E323	Appears to be residential and not building installation services
0000000153DE125	H451	Appears to be residential and not cafes restaurants and takeaway food services

MERX

Flux requires ANZSIC codes to be consistent with the customer's pricing. Customers with residential pricing are expected to have residential ANZSIC codes and customers with commercial pricing are expected to have commercial ANZSIC codes. Typically, the ANZSIC code is retrieved from the registry for new switches in.

The validity of ANZSIC codes was checked:

- two ICPs with T994 series ANZSIC codes were recorded on the registry list, but were updated prior to the audit,
- no ICPs have meter category three or higher, and
- 11 ICPs have meter category two and a residential ANZSIC code, but the four ICPs shown below do not appear to be residential.

ICP	ANZSIC Code	Category	Findings
0007136155RN51E	0	2	Appears to be manufacturing or a warehouse
0006532101RN59A	0	2	Possibly McLean Motors
0005986397RN079	0	2	Appears to be a restaurant
0000447769UN60F	0	2	Looks like a commercial premise

I checked 40 ANZSIC codes by comparing them to Google streetview information. One ICP appears to have an incorrect ANZSIC code, as recorded in the table below.

ICP	ANZSIC Code	Findings
0000006426TR125	H451	Appears to be residential not Cafes Restaurants and Takeaway Food Services.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.6 With: 9 (1(k) Schedule 11.1 From: 01-Oct-19 To: 07-Jul-20	**MERI** Three ICPs with incorrect ANZSIC codes. **MERX** Five ICPs with incorrect ANZSIC codes. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are strong. There are preventative controls are in place to ensure that ANZSIC codes are initially recorded accurately, and monitoring controls are periodically used to check and correct ANZSIC codes. The audit risk rating is low this has no direct impact on submission accuracy.

Actions taken to resolve the issue	Completion date	Remedial action status
We have reviewed all ICPs identified as potentially incorrect and corrected where required.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Non-compliance	Description	
We will continue with our current controls which are reported as strong. During the audit period and following clarification from the Authority we have revised our application of ANZSIC codes to ensure these are correct in respect of the primary activity of the customer at an ICP rather than activity at the ICP itself. We suggest clarification may be required to all participants who may have differing interpretation re application of ANZSIC code.	Ongoing	

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 files as at 07/07/20 and AC020 trader compliance report for 01/10/19 to 07/07/20 were examined to identify any ICPs where:

- unmetered load is identified by the distributor and none is recorded by Meridian, and
- Meridian's 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 1.0 kWh per day (1.0 kWh per day was chosen as a sample only; this does not indicate compliance is achieved if an error is found that is less than 1.0 kWh per day).

Audit commentary

MERI

Meridian has processes in place to validate unmetered load.

- Any unmetered load that switches in is allocated to the reconciliation team's work queue for checking.
- The daily capacity report is reviewed monthly. This report compares the trader daily kWh recorded on the registry and the daily kWh recorded in the Velocity life cycle, which is used for billing purposes. The registry value is applied for settlement and differences are investigated and resolved by the reconciliation team monthly. It was recorded in the previous audit report that Meridian was working with Wellington Electricity to ensure that shared unmetered load was added for 0001409077UN5D7. This has not occurred, and in the meantime 0.71 kWh per day is recorded on the registry and for submission.
- Where a distributor changes unmetered load information on the registry, a notification file is sent and automatically loaded into Velocity. Changes to unmetered load details are not directed to a workflow for review; these will be identified through the daily capacity report checks. Orion also normally emails Meridian if unmetered load details for any of their ICPs have changed.

- Periodically a report is generated to compare all distributor and trader unmetered load fields on the registry. The notes are compared to ensure that the trader and distributor details are consistent, and also consistent with the daily unmetered kWh which Meridian has calculated.

If any of the checks identify that unmetered load corrections are required, the corrections are backdated so that consumption will be correct for any revision submissions.

Active ICPs with no metering or unmetered load recorded by MERI

ICP 0000840407WE388 is not metered. Submission is calculated by subtraction and an exemption is not yet in place. This is discussed further in **section 6.1**.

ICPs with unmetered load recorded by the distributor but not by MERI

Six ICPs have distributor unmetered load details and no unmetered load populated by MERI. Three ICPs were confirmed to be metered, and the distributor's details are incorrect.

The remaining three ICPs relate to NZTA Northland DUML ICPs. These being reconciled using the Northpower database information therefore the UML flag is incorrectly set. This is also discussed in **section 5.4** and recorded as non-compliance in **section 2.1**.

ICPs with unmetered load recorded by MERI but not the distributor

529 ICPs with unmetered load recorded by MERI have blank distributor unmetered load fields.

ICPs with blank or zero daily kWh

113 ICPs have zero populated in the daily unmetered kWh field. All 113 are tsunami sirens or residual load ICPs and are correctly recorded with zero daily unmetered kWh.

Accuracy of trader unmetered daily kWh

The AC020 report identified 54 ICPs where the daily unmetered kWh calculated from the distributor's unmetered load field was not within ± 0.1 kWh per day of Meridian's daily unmetered load. These were all examined, with the following findings:

- Meridian's figure is correct for 41 ICPs and the distributor field is incorrect.
- the loads for five ICPs are being checked with the distributor, and data will be updated as required, and
- the other eight ICPs had incorrect unmetered load details and have now been corrected.

I confirmed that Meridian is submitting unmetered load correctly where their unmetered field is populated correctly.

MERX

Registry notification files are imported into Flux and reviewed. This process should identify any changes to distributor unmetered load details.

MERX currently supplies 15 ICPs with unmetered load. The daily unmetered load populated in Flux is consistent with the trader and distributor registry data.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.7 With: Clause 9(1)(f) of Schedule 11.1 From: 01-Oct-19 To: 07-Jul-20	**MERI** Unmetered load incorrect for eight ICPs. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because 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
Unmetered load has been corrected for the 8 ICPs identified	Aug 2020	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will continue with existing controls in relation to unmetered load. We are also reviewing the AC-020 report regularly to identify instances where unmetered load may be incorrect.	Ongoing	

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

Code reference

Clause 17 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

The new connection process was examined in detail as discussed in **sections 2.9** and **3.5**.

The process to manage unmetered load was examined. The registry list files as at 07/07/20 and AC020 trader compliance report for 01/10/19 to 07/07/20 were to determine compliance.

- 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 13 updates were checked for accuracy.

Audit commentary

MERI

Velocity 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 unmetered kWh.

As described in **section 3.3** and **3.5**, the processing of reconnections and new connections is largely automated unless documentation is incomplete, or dates are inconsistent. Reads are entered as part of the new connection process. The previous audit recorded that reads were not always entered as part of the reconnection process, which had led to some submission accuracy issues. I checked the records for ten reconnected ICPs and they all had readings entered.

Review of the accuracy of data for a sample of reconnections in **section 3.3** identified five ICPs where an "active" period was created but not reversed. The ICPs are:

0000010286EA0E2,
0000025275TR8C6,
0006029485RNE0D,
0006461123RNDB2, and
0033003003WR047.

A review of discrepancies for new connections in **section 3.5** identified seven ICPs with incorrect "active" dates.

I checked 10 ICPs with consumption where the status is inactive. ICP 0000529153NR520 was not changed back to "active" for the period 24/09/19 to 06/01/20.

I checked 10 ICPs with bridged meters to ensure the status was changed to "active" when the bridging occurred. ICP 0000126740TR1F8 did not have the status changed to "active" for the period 18/10/19 to 08/11/19.

MERX

Flux 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 unmetered kWh.

I checked two ICPs where meters had been bridged to reconnect to ensure the status was active for the bridged period. In both cases, the status was correct.

I checked eight ICPs where there was consumption on inactive ICPs to ensure the status was changed to "active" for the period consumption was present. The status was not changed to "active" for the two ICPs shown in the table below.

ICP	Disconnection date	Latest read date	Comments
0000053294NT510	3/03/2020	5/07/2020	Status not changed to active. 148.75 kWh submitted in July instead of May 2020
0004018805TP667	9/06/2020	2/07/2020	Status not changed to active. 381 kWh not submitted.

The previous audit report recorded that Flux automatically marked ICPs as "active" on switch in date, and users needed to manually update the status to "inactive" if an ICP is not reconnected on switch in. This practice no longer occurs.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.8 With: 17 Schedule 11.1 From: 01-Oct-19 To: 07-Jul-20	**MERI** • Five reconnections have incorrect active status dates recorded. • 7 new connections had incorrect status dates recorded. • Two ICPs with incorrect statuses. **MERX** • Two ICPs with incorrect statuses. 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. Preventative controls are in place; status updates are at least partially automated in both Velocity and Flux through the B2B processes. Work queues are created where information is incomplete or requires checking. Controls would improve to strong if new connection dates were checked by comparing them to distributor and MEP date, and active records created to produce service orders were monitored to ensure that they were removed. The audit risk rating is low, as a small number of differences were identified.

Actions taken to resolve the issue	Completion date	Remedial action status
Corrections to all incorrect status/dates have been processed	Oct 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

MERI We are developing reporting to monitor ICPs that are made active to complete customer onboarding for inactive ICPs to ensure these are returned to inactive where required. This is a workaround to a system control to prevent ICPs reconnected during the switching process from being and not made active. **MERX** We will clarify with staff managing the revenue assurance process the requirement for status to be updated where investigation of disconnected consuming ICPs confirms the ICP is connected.	31 Jan 2020 31 Oct 2020	

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

Code reference

Clause 19 Schedule 11.1

Code related audit information

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

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

Audit observation

The inactive status of "new connections in progress" is used for all new connections. The list file was examined to identify any ICPs that had been at the "Inactive - new connection in progress" with an initial energisation date populated, and for any of these ICPs that had been at this status for greater than 24 months.

The process to manage ICPs at the other inactive statuses was examined. A sample of 32 status updates to inactive were checked for MERI, and 14 status updates to inactive were checked for MERX.

The findings in relation to the timeliness of updates to registry is recorded in **section 3.3.**

Audit commentary

MERI

As described in **section 3.3**, the processing of disconnections is largely automated unless documentation is incomplete, or dates are inconsistent.

Meridian follows a vacant disconnection process, which is described in the table below.

Day	Process
3	A letter is sent to the occupier, encouraging them to open an account.
9	A reminder letter is sent to the occupier.
16	AMI ICPs with consumption under a set threshold (5 kWh for residential and 10 kWh per day for commercial) are disconnected. AMI ICPs with consumption over the set threshold are left connected. ICPs with non-AMI metering are also left connected as there is usually insufficient reading information to confirm they are unoccupied.

Day	Process
28	The ICP is referred to external investigators who attempt to contact the customer or landlord. Depending on the outcome of the investigation the ICP will be disconnected with the landlord or owner's consent or will remain connected.

Inactive - new connection in progress

Analysis of the list file found two ICPs which had been at "new connection in progress" status for more than 12 months. One is now "active" and one has been changed back to "ready".

28 ICPs with "new connection in progress" status had an initial electrical connection date recorded. All examples were checked. 22 were timing differences and have been updated to "active" status from the correct date. Four are not electrically connected and Orion's initial electrically connected date is incorrect. One is related to the Electricity Ashburton ICP split project and one is being investigated with the MEP to confirm if it has been electrically connected.

Inactive Status (excluding new connection in progress)

Inactive statuses are only applied once Meridian's approved contractor has confirmed that the ICP has been disconnected. Meridian records disconnections in Velocity as vacant or credit, and all disconnections are initially processed on the registry as vacant disconnections (1,4 status). Once an ICP has moved to 1,4 status Velocity will allow update to 1,6 if the ICP is to be decommissioned.

Review of status updates to inactive did not identify any inaccurate data.

Meridian has processes in place to identify ICPs with inactive consumption. These processes are discussed in **section 9.5**, and corrections are discussed in **section 2.1**. A sample of 10 ICPs was checked where consumption was present, but the status was inactive. Only one of these had the incorrect status recorded. This is discussed further in **Section 3.8**.

MERX

I checked the accuracy of 14 MERX status updates to inactive. All the updates were correct.

Inactive ready for decommissioning (1,6) status is not available in Flux, and this status is manually updated directly on the registry.

Audit outcome

Compliant

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

Code reference

Clause 15 Schedule 11.1

Code related audit information

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

Audit observation

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

I analysed the registry list of ICPs with "new" or "ready" status.

Audit commentary

MERI

Meridian uses the status “inactive – new connection in progress”, and usually changes the status once it is set to ”ready”.

HHR ICPs at “new” or “ready” status are manually monitored using spreadsheets and a physical book which contains a checklist for each new connection. HHR new connections are closely monitored and new connection completion paperwork is processed daily.

NHH ICPs at “new” or “ready” status are monitored using Velocity’s workflows, as discussed in **section 3.5**.

Requests from distributors on ICPs which have been at “new” or “ready” for more than two years are investigated and responded to when they are received. Meridian endeavours to respond as quickly as possible.

There were no ICPs at “new” or “ready” for more than 24 months.

MERX

MERX does not complete new connections and is not expected to have any ICPs at “new” or “ready” status unless they have been assigned to MERX as the proposed trader in error. There is currently no monitoring of ICPs at “new” or “ready” statuses.

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 one or more profile codes associated with that ICP.

Audit observation

The switch gain process was examined to determine when Meridian deem all conditions to be met. A typical sample of six NTs per code were checked to confirm whether they were notified to the registry within two business days, and if the correct switch type was selected.

Audit commentary

Meridian'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 (including a credit check) and the withdrawal process is used if the customer changes their mind.

Switch type is selected based on information provided by the customer on application. The customer is asked whether they have been billed at the property by another retailer as part of the application process.

MERI

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

MERX

There was only one backdated NT file for MERX, and it was because the losing trader released the ICP early. Compliance is confirmed.

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 two months.

Audit observation

Event detail reports for 01/10/19 to 07/07/20 were reviewed to:

- identify AN files issued by Meridian during the audit period,
- assess compliance with the requirement to meet the setting of event dates requirement, and
- a sample of two ANs per trader code and response code were reviewed to determine whether the codes had been correctly applied.

The switch breach report was examined for the audit period.

Audit commentary

MERI

The check of the AN codes found all were correct. AN code selection is managed by Meridian using business rules that are set within Velocity.

The event detail report was reviewed for all 42,064 transfer ANs to assess compliance with the setting of event dates requirements:

- 99.1% of 60,139 of ANs had proposed event dates within five business days of the NT receipt date, and
- no dates were over 10 days.

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

MERX

AN files are generated by Flux. Flux automatically applies the AN response code unless more than one option is applicable. In these cases, the AN is directed to a work queue where the user manually selects the code. All AN codes reviewed were correctly applied.

Proposed event dates are populated by Flux. The event detail report was reviewed for all 2,279 transfer ANs to assess compliance with the setting of event dates requirements. 2,277 ANs had proposed event dates within five business days of the NT receipt date.

There were no late AN files.

Audit outcome

Compliant

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

Code reference

Clause 5 Schedule 11.3

Code related audit information

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

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

Audit observation

Event detail reports for 01/10/19 to 07/07/20 were reviewed to identify CS files issued by Meridian during the audit period. The accuracy of the content of CS files was confirmed by checking a sample of ten records per code. 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, over 200, or zero kWh were identified. A sample of 15 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

MERI

<u>CS timeliness</u>

Velocity's work queues manage the switching process, and most switches are processed automatically. The work queues are prioritised as follows, and the priority increases if issues are not resolved as the due date nears:

- **Priority 1** includes switch acknowledgement errors where there is a difference between the registry and Velocity data, AN files not sent, and CS files not sent,
- **Priority 2** includes files not sent because Velocity is waiting for information, but the switch is not close to the due date, and
- **Priority 3** includes sites gained with export meters (where Meridian needs to check and update profiles), and withdrawals requiring responses.

In addition, the switching team runs the switch breach report twice daily to identify any switches which have not been sent within two business days. A report to show failed switch acknowledgement codes

relating to metering issues is run if there are delays in processing work queues, to ensure that issues are identified and resolved promptly.

The switch breach report recorded 13 late transfer CS files.

CS content

The registry functional specification requires estimated daily kWh to be based on the average daily consumption for the last read to read period for meters with flow direction X.

Velocity's estimated daily kWh calculation has not changed during the audit period. In most cases, the calculation does match the daily average consumption between the last two actual readings, but the following issues are present:

- estimated readings are included in the calculation,
- where the last two readings occur on the same day, the divisor is zero and the calculation produces unexpected results,
- where a meter has flow direction I, the average consumption is calculated as a negative value, instead of being excluded from the calculation, and
- where a CS file fails to be generated, Velocity re-creates the file and when this occurs Velocity reapplies the switch event read and the difference between this and the previous read is zero.

Meridian does not intend to make any changes to the estimated daily consumption calculation until the Authority's switching review is complete.

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

Estimated daily kWh	Count of transfer CS files	Findings
Negative	615	A sample of five ICPs were checked and found to be incorrect. All five examples had generation present and the memo from the Authority on 18/06/19 confirmed that negative kWh is not considered "consumption".
Zero	1,104	A sample of five ICPs were checked, and two were found to be incorrect. Velocity created a "normal" bill then a final bill on the same day with the same reading. The previous reading for a different day should have been used.
More than 200 kWh	353	A sample of five ICPs were checked, and all were found to be correct.

I checked the content of five transfer switch CS files and all fields were correct.

MERX

CS timeliness

I reviewed a process map for CS files in Flux and confirmed that CS files are automatically sent once all information required to complete the switch is available. If there is missing information, or a conflict in the information, a work queue item is generated.

The switching team runs the switch breach report daily to identify any switches which have not been sent within two business days of their due date.

The switch breach report contained nine late transfer CS files.

CS content

The registry functional specification requires estimated daily kWh to be based on the average daily consumption for the last read to read period. Flux calculates the estimated daily kWh based on the last two reads with a "verified" status. For the purpose of this calculation validated reads include validated customer and estimate readings in Flux, as well as validated actual readings. Disconnected ICPs have an estimated daily consumption of zero applied.

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

Estimated daily kWh	Count of transfer CS files	Findings
Negative	-	
Zero	13	10 ICPs were checked and found to be correct within a fraction of a kWh.
More than 200 kWh	3	All were confirmed as correct.

Flux automatically generates CS files based on the information recorded against the ICP.

The previous audit recorded that Flux recorded read dates and times for all reads. Readings which are provided as at 23.59.59 on the read date were rolled forward one second on import into Flux to be recorded against 00.00.00 the next day. This was because 23.59.59 is reserved for stop reads (including meter removals and decommissions). Other readings were imported with the date and time recorded in the read file. This practice has changed, and reads are now timestamped as 23.59.53, which ensures they have the correct date.

I checked the content of six transfer switch CS files and found three ICPs had actual readings labelled as estimates. The ICPs are shown in the table below.

ICP	Event date	Issue
0000001168DE9A9	24/03/2020	Actual reading labelled as estimate.
0000001617DEC28	11/01/2020	Actual reading labelled as estimate.
0000002216DEE8C	20/02/2020	Actual readings labelled as estimates.

During the check of RR files, I found that ICP 0000222351UNBFD had a reading for one day too early. This occurred prior to the improvement to the time stamping of AMI reads.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.3 With: Clause 5 Schedule 11.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** 13 late CS files. Average daily consumption is not calculated in accordance with the registry functional specification in some instances. **MERX** Nine late CS files. Average daily consumption is not calculated in accordance with the registry functional specification in some instances. At least three CS files had actual readings labelled as estimates. At least one incorrect CS read. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because improvements have been made to the time stamping of MERX readings, which has led to improvements in switch reading accuracy. Other controls are relatively sound apart from the average daily consumption, but there were no inaccurate average daily consumption figures. The audit risk rating is low because the kWh differences found are generally small.

Actions taken to resolve the issue	Completion date	Remedial action status
No action is able to be taken to correct the issues raised in this section without impacting other retailers and customers.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Average daily consumption – as reported, and due to the migration of ICPs off Velocity, the average daily consumption logic has not been changed. The issues noted with regard negative average consumption when DG is present and calculation of 0 average consumption when a zero days bill is produced are not present in Flux. A high proportion of TR DG switches that occurred during the audit period will be between MERI and MERX. **Timeliness of CS files** – As reported we have daily processes to monitor ICPs in the switching process using the Registry switch timer functionality and check files that are 2 days away from being due so that any issues holding up the sending of these can be identified and resolved. Following recent changes to the Registry switch breach rules relating to the timer we have amended our daily process and will be monitoring compliance monthly to ensure the daily process is working as expected. **Actual readings labelled as estimates in CS file** - all examples of this identified were linked to the rolling forward of 23:59:59 reads which has now been resolved.	Ongoing April 2020	

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

Code reference

Clause 6(1) and 6A Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

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

Event detail reports for 01/10/19 to 07/07/20 were analysed to identify all read change requests and acknowledgements during the audit period. A sample of ten RR files issued by Meridian, and ten AC files issued by Meridian were checked.

I also checked a sample of ten RR files sent by Meridian where the other trader rejected, to ensure Velocity readings were correct.

Audit commentary

RR requests are generally initiated via email between the two parties and an RR file is usually sent once agreement is reached. All RR requests are evaluated and validated against the ICP information and in the AMI read database. Validated requests are accepted.

MERI

A daily report is run from the BI Hub to find discrepancies between gain reads and the first reads received by Meridian, and these are investigated to determine whether a read renegotiation is required. ICPs which may require read renegotiation are also identified through the reading validation process and referred to the switching team for action.

MERI issued 306 RR files for transfer switches. 270 were accepted and 36 were rejected. A sample of five rejected files and five accepted files were checked. In all cases there was a genuine reason for Meridian's RR, the file content was accurate and supported by two actual reads obtained by Meridian (or was as requested by the other trader), and the reads recorded in Meridian's system reflected the outcome of the RR process. For one accepted RR (0000006509NTEFA, 17/01/20) the read type was recorded as estimated when the agreed switch reading was an actual reading from AMI.

MERI issued 376 AC files for transfer switches. 328 were accepted and 48 were rejected. Where the difference between the agreed switch reading and Meridian's reading is within ± 1 kWh, a correction is not normally processed. Where the difference is more than ± 1 kWh, the switching team normally asks the reconciliation team to adjust the switch event reading in Velocity.

A sample of five ACs were checked where MERI had rejected the RR. In all cases MERI's reading in the CS file was correct and the reading in the RR file was incorrect. In four cases MERI had provided actual readings from AMI in the CS files.

I checked five ICPs where MERI's RR was rejected. In all cases the reading in Velocity was the CS read, which is correct.

The switch breach report contained 28 late RR files and no late AC files. The late RR files were mainly due to delays in obtaining the first read or delays in customer contact regarding their invoice.

MERX

RRs are managed through tickets in Flux. A ticket is raised for the switching team where an ICP requiring a read change is identified, and the ICP is added to the replacement reads list. Readings are automatically replaced once the AC is returned. The switch breach report confirmed four late transfer RR files and AC files were sent within the required timeframe.

MERX issued 32 RR files for transfer switches. 25 were accepted and seven were rejected. Five RRs were checked to confirm whether there was a genuine reason for MERX's RR, the file content was accurate and supported by two actual reads, and the reads recorded in Flux reflected the outcome of the RR process. I found that three of the five RRs had estimates labelled as actuals.

I checked four ICPs where MERX had rejected the RR by the other trader. For three of the ICPs the RR readings sent by the other trader were incorrect and the file was correctly rejected. For ICP 0000222351UNBFD, the gaining trader is using the HHR profile and the RR was sent within five business days, therefore MERX is required to accept the RR. MERX's CS reads were estimates. The kWh difference is only 6, however this is still non-compliance and is recorded in **section 4.5**.

I checked two RR files sent by MERX which were rejected. In both cases MERX used the correct readings in Flux.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.4 With: Clause 6(1) and 6A Schedule 11.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** For one accepted RR the actual reading was recorded as an estimate. 28 late RR files. **MERX** Four late RR files. At least three RR files had estimates labelled as actuals. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate, because they are sufficient to ensure most fields in most files are accurate. The impact is low because there is a minor impact on other participants and on settlement due to incorrect labelling of reads and late RR files.

Actions taken to resolve the issue	Completion date	Remedial action status
No action is able to be taken to correct the issues raised in this section without impacting other retailers and customers.		Choose an item.
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Timeliness of RR files – Meridian has controls to identify gain reads that may be problematic as early as possible however where there are delays in obtaining a read this does result in the late sending of RRs in those circumstances. **Estimates labelled as actuals –** This is caused by a limitation in system functionality regarding selection of read type in the RR process and has been raised for resolution with our system provider.	April 2021	

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. Event detail reports for 01/10/19 to 07/07/20 were analysed to identify read change requests issued and received under Clause 6(2) and (3) Schedule 11.3 and determine compliance.

Audit commentary

MERI

MERI did not issue any RR requests under clause 6(2) and (3) of Schedule 11.3.

Review of the event detail report found 81 RR files were issued to MERI within five business days of switch completion, by traders using a half hour profile. Of those, 40 were rejected. I checked five examples and in all cases the reading in MERI's CS file was correct and the reading in the RR file was incorrect.

MERX

MERX did not issue any RR requests under clause 6(2) and (3) of Schedule 11.3.

Review of the event detail report found 55 RR files were issued to MERX within five business days of switch completion, by traders using a half hour profile. Of those, 48 were accepted and seven were rejected. I checked four of the seven rejections and found that for ICP 0000222351UNBFD, the gaining trader is using the HHR profile and the RR was sent within five business days, therefore MERX is required to accept the RR. MERX's CS reads were estimates. The kWh difference is only 6, however this is still non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.5 With: Clause 6(2) and (3) Schedule 11.3 From: 15-Apr-20 To: 15-Apr-20	**MERX** An RR for ICP 0000222351UNBFD issued under clause 6(2) and (3) of Schedule 11.3 was invalidly rejected. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	The controls are rated as moderate because most RRs issued under clause 6(2) and (3) of Schedule 11.3 were accepted or validly rejected. The RR was invalidly rejected due to a processing error. The impact is rated as low because one RR was invalidly rejected and the difference in readings was 6 kWh.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
No action is able to be taken to correct the issues raised in this section without impacting other retailers and customers		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refresher training is scheduled to cover Code obligations related to read disputes including the requirement to accept under this clause.	November 2020	

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 9 Schedule 11.3

Code related audit information

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

If the "uninvited direct sale agreement" applies, the gaining trader must identify the period within which the customer or embedded generator may cancel the arrangement in accordance with section 36M of

the Fair Trading Act 1986. The arrangement is deemed to come into effect on the day after the expiry of that period.

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

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

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

Audit observation

The switch gain process was examined to determine when Meridian deem all conditions to be met. A typical sample of five NTs per code were checked to confirm whether they were notified to the registry within two business days, and if the correct switch type was selected.

Audit commentary

Meridian'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 (including a credit check) and the withdrawal process is used if the customer changes their mind.

Switch type is selected based on information provided by the customer on application. The customer is asked whether they have been billed at the property by another retailer as part of the application process.

MERI

Commercial and industrial contracted customers usually switch between retailers on the first day after their contract term ends to avoid paying contract termination fees for switching early, or standard pricing where they remain with a retailer after their contract ends. Contract customers such as district and city councils may switch large numbers of ICPs between retailers at one time.

In some cases where a certain switch event date is required, Meridian requests a switch move instead of a transfer switch with the agreement of the losing trader. While it is possible to request a standard switch with a proposed switch event date, the losing trader may elect to use a different date. For switch moves, the losing trader should comply with the requested date, increasing the likelihood that the ICPs will switch on the correct date. I did not identify any examples during this audit.

Ten NT files were checked to determine whether they were sent within two business days of pre-conditions being cleared, and the correct switch type was selected. In all cases the backdated NT files were sent as soon as contact was made by the customer.

MERX

I checked 20 backdated NT files to determine whether they were sent within two business days of pre-conditions being cleared, and the correct switch type was selected. In all cases the NT files were sent as soon as contact was made by the customer.

Audit outcome

Compliant

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

Code reference

Clause 10(1) Schedule 11.3

Code related audit information

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

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

Audit observation

Event detail reports for 01/10/19 to 07/07/20 were reviewed to:

- identify AN files issued by Meridian during the audit period,
- assess compliance with the requirement to meet the setting of event dates requirement, and
- review a sample of two ANs per trader code and response code to determine whether the codes had been correctly applied.

The process to manage the sending of the CS file within five business days was examined. The switch breach report was examined for the audit period to identify any late AN and CS files.

Audit commentary

MERI

The check of the AN codes found all were correct. AN code selection is managed by Meridian using business rules that are set within Velocity.

The event detail report was reviewed for all switch move ANs to assess compliance with the setting of event dates requirements. There were no dates set early or more than 10 days late.

Velocity's work queues manage the switching process, and most switches are processed automatically. The work queues are prioritised as follows, and the priority increases if issues are not resolved as the due date nears:

- **Priority 1** includes switch acknowledgement errors where there is a difference between the registry and Velocity data, AN files not sent, and CS files not sent,
- **Priority 2** includes files not sent because Velocity is waiting for information, but the switch is not close to the due date, and
- **Priority 3** includes sites gained with export meters (where Meridian needs to check and update profiles), and withdrawals requiring responses.

In addition, the switching team runs the switch breach report twice daily to identify any switches which have not been sent within two business days. A report to show failed switch acknowledgement codes relating to metering issues is run if there are delays in processing work queues, to ensure that issues are identified and resolved promptly.

The switch breach report recorded one late switch move AN file.

MERX

AN files are generated by Flux. Flux automatically applies the AN response code unless more than one option is applicable. In these cases, the AN is directed to a work queue where the user manually selects the code. Two ICPs had the "CO" code applied and should have had the "OC" code.

Proposed event dates are populated by Flux. If the last billed date + one day does not match the requested date, the AN is directed to a work queue for resolution by the switching team. The validation screen states "you may select a date to use for the expected switch date and effective transfer date which is on or after <proposed date>" and allows the user to enter any date they choose.

The event detail report was reviewed for all switch move ANs to assess compliance with the setting of event dates requirements. All had proposed event dates within ten business days of NT receipt; and none had early event dates.

The switch breach report recorded two late switch move AN files.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.8 With: Clause 10(1) Schedule 11.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** One late AN file. **MERX** Two late AN files. Two incorrect AN codes. 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 over AN responses are strong. They are automated and sufficient to ensure that the correct response code will be applied most of the time. The impact is assessed as low due to the small number of issues.

Actions taken to resolve the issue	Completion date	Remedial action status
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will continue with existing controls	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 sub-clause (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

Event detail reports for 01/10/19 to 07/07/20 were reviewed to identify CS files issued by Meridian more than 10 days from the NT date where a different switch event date was determined by Meridian in the AN file.

Audit commentary

MERI

Analysis found there were no late CS files where a different date had been determined.

MERX

Analysis found there were no late CS files where a different date had been determined.

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

Event detail reports for 01/10/19 to 07/07/20 were reviewed to identify CS files issued by Meridian during the audit period. The accuracy of the content of CS files was confirmed by checking a sample of ten records per code. 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 15 of these CS files were checked to determine whether the average daily consumption was correct.

Audit commentary

MERI

As recorded in **section 4.3**, The registry functional specification requires estimated daily kWh to be based on the average daily consumption for the last read to read period for meters with flow direction X.

Velocity's estimated daily kWh calculation has not changed during the audit period. In most cases, the calculation does match the daily average consumption between the last two actual readings, but the following issues are present:

- estimated readings are included in the calculation,
- where the last two readings occur on the same day, the divisor is zero and the calculation produces unexpected results,
- where a meter has flow direction I, the average consumption is calculated as a negative value, instead of being excluded from the calculation, and
- where a CS file fails to be generated, Velocity re-creates the file, and when this occurs Velocity reapplies the switch event read and the difference between this and the previous read is zero.

Meridian does not intend to make any changes to the estimated daily consumption calculation until the Authority's switching review is complete.

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

Estimated daily kWh	Count of switch move CS files	Findings
Negative	61	A sample of five ICPs were checked and found to be incorrect. One example had generation present and the memo from the Authority on 18/06/19 confirmed that negative kWh is not considered "consumption". Three examples were consumption between an estimate and an actual. One example was between an incorrect reading and a correct reading.
Zero	2,367	A sample of five ICPs were checked, and two were found to be incorrect. Velocity created a "normal" bill then a final bill on the same day with the same reading. The previous reading for a different day should have been used.
More than 200 kWh	103	A sample of five ICPs were checked, and all were found to be correct.

I checked the content of five switch move CS files and found the readings for ICP 0000137970TR94A were labelled as actuals, but they were estimates.

There were 171 late CS files.

MERX

38 late CS files were sent.

The registry functional specification requires estimated daily kWh to be based on the average daily consumption for the last read to read period. Flux calculates the estimated daily kWh based on the last two reads with a "verified" status. For the purpose of this calculation validated reads include validated

customer and estimate readings in Flux, as well as validated actual readings. Disconnected ICPs have an estimated daily consumption of zero applied.

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

Estimated daily kWh	Count of transfer CS files	Findings
Negative	-	
Zero	143	10 ICPs were checked and found to be correct within a fraction of a kWh.
More than 200 kWh	2	Both were confirmed as correct.

Flux automatically generates CS files based on the information recorded against the ICP.

The previous audit recorded that Flux recorded read dates and times for all reads. Readings which are provided as at 23.59.59 on the read date were rolled forward one second on import into Flux to be recorded against 00.00.00 the next day. This was because 23.59.59 is reserved for stop reads (including meter removals and decommissions). Other readings were imported with the date and time recorded in the read file. This practice has changed, and reads are now timestamped as 23.59.53, which ensures they have the correct date.

I checked the content of six move switch CS files and found two ICPs had actual readings labelled as estimates. The ICPs are shown in the table below.

ICP	Event date	Issue
0000000366DE195	15/01/2020	Actual reading labelled as estimate.
0000000877DE473	24/01/2020	Actual reading labelled as estimate.

During the check of RR files, I found that four ICPs had readings for one day too early. This occurred prior to the improvement to the time stamping of AMI reads.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 11 Schedule 11.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** 171 late CS files. Average daily consumption is not calculated in accordance with the registry functional specification in some instances. Estimates labelled as actuals for at least one ICP. **MERX** 38 late CS files. Average daily consumption is not calculated in accordance with the registry functional specification in some instances. At least two CS files had actual readings labelled as estimates. At least four incorrect CS reads. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because improvements have been made to the time stamping of MERX readings, which has led to improvements in switch reading accuracy. Other controls are relatively sound apart from the average daily consumption, but there were no inaccurate average daily consumption figures. The audit risk rating is low because the kWh differences found are generally small.

Actions taken to resolve the issue	Completion date	Remedial action status
No action is able to be taken to correct the issues raised in this section without impacting other retailers and customers		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Average daily consumption – as reported, and due to the migration of ICPs off Velocity, the average daily consumption logic has not been changed. The issues noted with regard negative average consumption when DG is present and calculation of 0 average consumption when a zero days bill is produced are not present in Flux. **Timeliness of CS files** – As reported we have daily processes to monitor ICPs in the switching process using the Registry switch timer functionality and check files that are 2 days away from being due so that any issues holding up the sending of these can be identified and resolved. Following recent changes to the Registry switch breach rules relating to the timer we have amended our daily process and will be monitoring compliance monthly to ensure the daily process is working as expected. **Actual readings labelled as estimates and read one day early in CS file** - all examples of this identified were linked to the rolling forward of 23:59:59 reads which has now been resolved.	Ongoing April 2020	

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

Code reference

Clause 12 Schedule 11.3

Code related audit information

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

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

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

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

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

Audit observation

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

Event detail reports for 01/10/19 to 07/07/20 were analysed to identify all read change requests and acknowledgements during the audit period. A sample of ten RR files issued by Meridian, and ten AC files issued by Meridian were checked.

I also checked a sample of ten RR files sent by Meridian where the other trader rejected, to ensure Velocity readings were correct.

Audit commentary

RR requests are generally initiated via email between the two parties and an RR file is usually sent once agreement is reached. All RR requests are evaluated and validated against the ICP information and in the AMI read database. Validated requests are accepted.

MERI

A daily report is run from the BI Hub to find discrepancies between gain reads and the first reads received by Meridian, and these are investigated to determine whether a read renegotiation is required. ICPs which may require read renegotiation are also identified through the reading validation process and referred to the switching team for action. The switch breach report recorded 42 late RR files and no late AC files.

Meridian issued 720 RR files for switch moves. 625 were accepted and 95 were rejected. A sample of five rejected files and five accepted files were checked. In all cases there was a genuine reason for Meridian's RR, the file content was accurate and supported by two actual reads obtained by Meridian (or was as requested by the other trader), and the reads recorded in Meridian's system reflected the outcome of the RR process.

MERI issued 732 AC files for switch moves. 612 were accepted and 120 were rejected. Where the difference between the agreed switch reading and Meridian's reading is within ± 1 kWh, a correction is not normally processed. Where the difference is more than ± 1 kWh, the switching team normally asks the reconciliation team to adjust the switch event reading in Velocity.

A sample of five ACs were checked. Four rejections were valid but for ICP 0000137970TR94A, MERI's CS file had estimates labelled as actuals and the RR file was from a HHR trader and it was sent within five business days so MERI should have accepted it. Whilst the kWh difference is only 19, this is still non-compliance.

MERX

RRs are managed through tickets in Flux. A ticket is raised for the switching team where an ICP requiring a read change is identified, and the ICP is added to the replacement reads list. Readings are automatically replaced once the AC is returned. The switch breach report confirmed all transfer RR and AC files were sent within the required timeframe. The switch breach report confirmed all switch move RR and AC files were sent within the required timeframe.

MERX issued 70 RR files for switch moves. 63 were accepted and seven were rejected. Five RRs were checked to confirm whether there was a genuine reason for MERX's RR, the file content was accurate and supported by two actual reads, and the reads recorded in Flux reflected the outcome of the RR process.

Three of five RR files had estimates labelled as actuals.

I checked six ICPs where MERX had rejected the RR file. In four cases, MERX should have accepted the RR by the other trader because it was from AMI readings from a HHR trader and was sent within five business days. I also confirmed that MERX's readings in the CS files were incorrect.

I checked five rejections by other traders and in all cases, MERX had used the CS read and not the RR read. Compliance is confirmed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.11 With: Clause 12 Schedule 11.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** The RR for ICP 0000137970TR94A was incorrectly rejected. 42 late RR files **MERX** At least three RR files had estimates labelled as actuals. At least four RRs were incorrectly rejected. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak, because they are not sufficient to ensure that the agreed switch reading is consistently recorded, particularly where differences are small. The impact is low. The difference in read types has no impact on submission but there is minor incorrect submission due to invalid rejections of RR files.

Actions taken to resolve the issue	Completion date	Remedial action status
No action is able to be taken to correct the issues raised in this section without impacting other retailers and customers.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Timeliness of RR files – Meridian has controls to identify gain reads that may be problematic as early as possible however where there are delays in obtaining a read this does result in the late sending of RRs in those circumstances. **Estimates labelled as actuals –** This is caused by a limitation in system functionality regarding selection of read type in the RR process and has been raised for resolution with our system provider. **RR's incorrectly rejected** - Refresher training is scheduled to confirm all relevant staff understand Code obligations regarding acceptance of RR's.	April 2021 November 2020	

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 three business days after the arrangement comes into effect.

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

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

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

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

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

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

Audit observation

The switch gain process was examined to determine when Meridian deem all conditions to be met. A sample of 13 backdated HH NTs were checked to confirm whether they were notified to the registry within three business days.

Audit commentary

MERI

The HH switching process is manual. NTs are issued once the account manager provides a contract preparation form which contains all the necessary details to prepare the switch and set up the customer. All HH switches are tracked using a spreadsheet, which is checked daily.

Three NT files were not sent within three days of the arrangement coming into effect. ICPs 0000772373HB285, 0001832963AL33F and 1002066752LC5D8 had processing issues leading to late population in the registry.

MERX

MERX does not supply HH ICPs, and no HH switches were requested during the period reviewed.

Audit outcome

Non-compliant

<table>
<tr><th>Non-compliance</th><th colspan="3">Description</th></tr>
<tr><td>Audit Ref: 4.12
With: Clause 14 Schedule 11.3

From: 01-Oct-19
To: 07-Jul-20</td><td colspan="3">MERI
Three late NT files.
Potential impact: Low
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 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.</td></tr>
<tr><th colspan="2">Actions taken to resolve the issue</th><th>Completion date</th><th>Remedial action status</th></tr>
<tr><td colspan="2"></td><td></td><td rowspan="3">Identified</td></tr>
<tr><th colspan="2">Preventative actions taken to ensure no further issues will occur</th><th>Completion date</th></tr>
<tr><td colspan="2">Delays with the contract execution process can delay issuing of NT files for HH switches in some instances. The 3 NT files identified as late were all issued as soon as confirmation was received of the acquisition of the relevant ICPs.</td><td></td></tr>
</table>

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

Event detail reports for 01/10/19 to 07/07/20 were analysed to:

- identify AN files issued by Meridian during the audit period,
- all AN response codes were reviewed to determine whether they had been correctly applied, and
- assess compliance with the timeliness requirements.

The switch breach report was examined.

Audit commentary

MERI

Once the NT file is received the process is managed manually, and the switching team liaises with the account manager to determine the correct AN response code. The switch breach report is run daily to identify ANs received, and Meridian endeavours to send ANs within two to three business days.

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

The check of the AN codes found they were all correct.

MERX

MERX does not supply HH ICPs, and no HH ANs were sent during the period reviewed.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

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

Audit commentary

MERI

The HH switching process is manual, and includes checks that metering is compliant. All HH switches are tracked using a spreadsheet, which is checked daily.

The content of all 306 HH CS files was reviewed and found to be correct.

The switch breach history report recorded six late CS files for HH switches. These all related to processing issues.

MERX

MERX does not supply HH ICPs, and no HH CS files were sent during the period reviewed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.14 With: Clause 16 Schedule 11.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** Six late CS files. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because 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
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Timeliness of CS files – As reported we have daily processes to monitor ICPs in the switching process using the Registry switch timer functionality and check files that are 2 days away from being due so that any issues holding up the sending of these can be identified and resolved. Following recent changes to the Registry switch breach rules relating to the timer we have amended our daily process and will be monitoring compliance monthly to ensure the daily process is working as expected.	Ongoing	

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

Code reference

Clauses 17 and 18 Schedule 11.3

Code related audit information

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

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

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

Event detail reports for 01/10/19 to 07/07/20 were reviewed to:

- identify all switch withdrawal requests issued by Meridian; the content of a sample of at least two ICPs from the event detail report for each withdrawal code (or all if less than two were available) and trader code were checked using the typical sampling methodology, as well as a sample of withdrawal requests rejected by other traders,
- identify all switch withdrawal acknowledgements issued by Meridian; a sample of 20 rejections were checked, and
- confirm timeliness of switch requests, as this is not currently being identified in the switch breach report.

The switch breach reports were checked for any late switch withdrawal requests or acknowledgements.

Audit commentary

MERI

Withdrawals are processed using Velocity. Withdrawals are triggered manually, and reason codes are selected manually, except for any transfer switch requests received on finalised accounts. For these Velocity automatically sends a withdrawal request for the switch type being incorrect.

The content of 27 NW files was compared to Velocity details. In all cases, the withdrawal code was correct based on the information available at the time of the request.

215 (10.1%) of the 2,119 AWs issued by Meridian were rejections. I reviewed a sample of ten rejections by Meridian, and confirmed they were rejected based the information available at the time the response was issued.

71 NWs were issued more than two calendar months after the event date. I reviewed 10 examples and there were many different reasons for the delay with no identifiable trend.

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

MERX

MERX identifies ICPs requiring withdrawals through its conversations with customers, validations and work queues. Withdrawal reason codes are selected manually.

The content of 42 NW files was checked, including ten rejections. All of the files had correct withdrawal reason codes applied.

I checked ten rejections and found they were all valid.

13 NW files were sent late.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.15 With: Clauses 17 and 18 Schedule 11.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** 71 NWs were issued late. **MERX** 11 late NW files. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to ensure that most NWs contain correct codes and are sent on time. The impact is low because the withdrawal reasons were correct even though there was a delay.

Actions taken to resolve the issue	Completion date	Remedial action status
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We consider that our process and controls related to switch withdrawals work well in most instances. On occasion the reasons leading to withdrawal of a switch can take some time to establish (e.g wrong ICP switched in error). The withdrawal in these instances is usually required to ensure a customer is correctly billed by the retailer of their choosing.	Ongoing	

4.16. Metering information (Clause 21 Schedule 11.3)

Code reference

Clause 21 Schedule 11.3

Code related audit information

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

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

Audit observation

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

Audit commentary

Meridian's policy regarding the management of meter reading expenses is compliant. The meter readings used in the switching process are validated meter readings or permanent estimates.

MERI

The content of CS files was examined in **sections 4.3** and **4.10**. All switch event meter readings checked were accurate.

The content of RR files was examined in **sections 4.4** and **4.11** and the readings were confirmed to be accurate.

MERX

The content of CS files was examined in **sections 4.3** and **4.10**. At least five errors were identified. They were all prior to the improvement to the time stamping of AMI readings.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.16 With: Clause 21 Schedule 11.3 From: 11-May-19 To: 30-Aug-19	**MERX** At least five incorrect CS reads. 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 at the time of the audit. They were weak until the time stamping of AMI reads was improved. The audit risk rating is low as the kWh differences found are generally small.

Actions taken to resolve the issue	Completion date	Remedial action status
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As reported, the timestamping issue that was causing inaccuracies with the switch event meter read provided in CS files has been resolved.	April 2020	

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

Code reference

Clause 11.15AA to 11.15AB

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

I checked 30 NW files for the CX reason issued after 31/03/20 to ensure compliance was achieved. I also requested six call files and listened to the calls to ensure compliance.

Audit commentary

MERI

The notes in Velocity indicated that there was no “save or winback” activity conducted within 180 days. MERI has an incentive upon sign up if a customer agrees to a three-year term. If the customer switches within three years, the incentive must be repaid. MERI conducts outbound calling to alert switching customers that they will be invoiced for the incentive. I listened to three calls where the incentive was discussed, and I confirm that the decision to stay with MERI was initiated by the customer and no offers were made by the MERI agent. It was interesting to note that two of the three customers stated they had not agreed to switch away and were surprised to hear that a switch had been processed.

MERX

The notes in Flux indicated that there was no “save or winback” activity conducted within 180 days. I listened to three calls and I confirm that the decision to stay with MERX was initiated by the customer and no offers were made by the MERX agent.

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 process to manage unmetered load was examined. The registry list files as at 07/07/20 and AC020 trader compliance report for 01/10/19 to 07/07/20 were examined to identify any ICPs where:

- unmetered load is identified by the Distributor and none is recorded by Meridian, and
- Meridian's 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 1.0 kWh per day (1.0 kWh per day was chosen as a sample only; this does not indicate compliance is achieved if an error is found that is less than 1.0 kWh per day).

Audit commentary

MERI

ICPs that switch in with shared unmetered load are added to Velocity's work queues. Each ICP in the work queue is checked to confirm the unmetered load details are accurate as they switch in. Unmetered load is also checked regularly as described in **section 3.7**.

The analysis found that all ICPs had the correct load (within ± 1.0 kWh per day of the recalculation based on the distributor information) and the UML flag "Y".

MERX

No errors were identified with MERX shared unmetered load.

Audit outcome

Compliant

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

Code reference

Clause 10.14 (2)(b)

Code related audit information

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

Audit observation

Examination of the Meridian list file as at 07/07/2020 found 39 ICPs had a load of 3,000-6,000 kWh and were examined to determine whether the load was predictable and of a type approved by the authority.

Nine ICPs had annual kWh exceeding 6,000. This is recorded as non-compliance in **section 5.3**.

Audit commentary

MERI

All ICPs with daily kWh between 3,000 and 6,000 kWh were checked. All had an approved load type.

MERX

There are no MERX ICPs with unmetered load over 3,000 kWh per annum.

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 registry list files as at 07/07/20 and AC020 trader compliance report for 01/10/19 to 07/07/20 were reviewed to identify all unmetered load over 6000 kWh per annum.

Audit commentary

MERI

The ICPs with consumption over 6,000 kWh that were identified during the current audit were examined and the findings are shown in the table below.

ICP	Load connected	Annual kWh	Supplied since	Findings	Meridian update
0000025161EA29D	Hospital lighting	8,614	01/04/19	This is a streetlight at Ashburton hospital	Included in draft exemption application. To be submitted by 30 Nov 2020
1001263111LC988	OVER HEIGHT WARNING SIGNS	8,760	28/04/14	Under investigation. Present last year.	Kiwirail withdrew their agreement for check metering to assess connected load. We are investigating other options for validating wattage and hours of operation for these signs.
1001263113LC90D	0.50kW:24:2 OVER HEIGHT WARNING SIGNS	8,760	30/10/15	Under investigation. Present last year.	Kiwirail withdrew their agreement for check metering to assess connected load. We are investigating other options for validating wattage and hours of operation for these signs.

ICP	Load connected	Annual kWh	Supplied since	Findings	Meridian update
0000160523CK83F	Railway station lighting	13,169	01/03/19	Now included in GWRC DUML audit report.	Audit completed. To be finalised and submitted by 31 Oct 2020
0000100115UN46C	Retirement village lighting	6,023	22/09/11	Appears to be DUML. Under investigation. Present last year.	Included in draft exemption application. To be submitted by 30 Nov 2020
0089342001PCB9C	NZTA lighting	6,570	01/04/99	The location of these lights in unknown.	Have confirmed this ICP is to be decommissioned as part of ICP consolidation and database work in Taranaki region. The assets associated will be recorded in the database.
0000161690CK4EE	Wellington Regional Council	9,260	24/09/19	These appear to be GWRC lights and should possibly be in the GWRC DUML database.	We are confirming with GWRC whether these lights can be included in the DUML database.
0007186942RNC7D	Non streetlight DUML	13,067	01/11/18	Confirmed as DUML and will be audited	Scheduled for audit
0007186944RNDF2	Non streetlight DUML	6,780	01/01/19	Confirmed as DUML and will be audited	Scheduled for audit
0007175618RNE97	Pedestrian Underpass lighting	6,358	06/07/16	This has been confirmed as a single point of connection.	Not DUML – single connection point. Orion's database contractor has been instructed to add these lights to the "non streetlight" DUML database which is scheduled for audit

MERX

There are no MERX ICPs with unmetered load over 3,000 kWh per annum.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.3 With: 10.14 (5) From: 01-Nov-18 To: 05-Sep-20	Nine standard unmetered ICP with annual consumption over 6,000 kWh. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because most ICPs falling into this category are identified and resolved. This is evident with the year on year reduction of these ICPs. However, some ICPs in this category have been supplied for several years. The audit risk rating is low as only nine ICPs exceed the threshold and these are in the process of being resolved.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer our comments in the table above regarding progress to resolve.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Controls in new connection process to prevent new UML being connected that is over the threshold allowed in the Code.	Ongoing	
Regular monitoring of UML identifies any ICPs switched in with connected load that is potentially over threshold so this can be validated and action to resolve taken where possible.	Ongoing	

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

Meridian is responsible for 37 distributed unmetered load databases. All DUML is supplied using the MERI participant code.

Audit commentary

The table below shows the findings from the last audits. The one database, NZTA Kaitoke, that has not been audited since the new audit regime came into effect is in the process of being audited. A database for this has recently been identified. This is expected to be completed within the next month.

Veritek has completed all audits due during the audit period with the exception of:

- NZTA Waipukurau - the database for this audit is being updated before the next audit is undertaken, and
- the Greater Wellington Regional Council - the draft audit report has been completed and is with Meridian to provide comments.

The three late DUML audit reports are recorded as non-compliance.

The Electricity Authority issued a memo on 18th June 2019 confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

Currently Meridian use a snapshot of a DUML database taken at the end of each month to derive submission. The use of a database snapshot to derive submission is recorded as non-compliance below.

Under the new audit DUML audit regime it is no longer possible to calculate an overall submission impact for the database inaccuracies found as the factors are not cumulative. Therefore, I have included in the table below the main submission related issues applicable for the DUML databases that Meridian is recorded as the trader for:

Database	Main issues	Potential kWh impact (per annum)
NZTA Northpower	Database inaccuracy Incorrect wattage values used in database	Over submission of 27,700 kWh Over submission of 47,478 kWh
Hamilton CC	Incorrect wattage values used in database	Under submission of 37,812 kWh
Waikato DC	Database inaccuracy	Under submission of 27,700 kWh
Taupo DC	Database inaccuracy	Over submission of 39,900 kWh

			Compliance Achieved (Yes/No)								
Database	Date of last audit	DUML Audit completed 16A.26 and 17.295F	Deriving submission information 11(1) of schedule 15.3	ICP identifier 11(2)(a) of schedule 15.3	Location of items of load 11(2)(b) of schedule 15.3	Description of load 11(2)(c)&(d) of schedule 15.3	All load recorded in database 11(2A) of schedule 15.3	Tracking of load changes 11(3) of schedule 15.3	Audit trail 11(4) of schedule 15.3	Database accuracy 15.2 and 15.37B(b)	Volume information accuracy 15.2 and 15.37B(c)
NZTA - Northland	30/07/20	No	No	Yes	Yes	No	No	Yes	Yes	No	No
Gisborne DC	01/09/20	Yes	No	Yes	Yes	No	No	Yes	Yes	No	No
Scanpower-Community Lighting	01/12/19	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
NZTA-Waipukarau	01/03/20	No	No	No	Yes	No	Yes	No	No	No	No
Palmerston North CC	26/05/20	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	No
NZTA- Kaitoke	Database has been identified and audit is underway	No	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Wellington City Council traffic lights	01/06/18	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hurunui DC	28/08/20	Yes	No	No	Yes	No	No	Yes	Yes	No	No
Kaikoura DC	01/12/19	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
La Point Subdivision Northland	18/04/19	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No

NZTA Christchurch	28/05/20	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Waterloo Park	01/06/20	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Jacks Point	31/05/19	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Gore DC	08/03/20	Yes	No	Yes	Yes	No	No	Yes	Yes	No	No
Southland DC	01/03/20	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Buller DC-RAMM	01/12/19	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Hamilton CC	01/02/20	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Waikato DC	01/06/20	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Waipa DC	31/05/19	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No
Hauraki DC	16/10/19	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Matamata Piako	20/12/19	Yes	No	Yes	Yes	No	No	Yes	Yes	No	No
South Waikato	30/12/19	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Taupo DC	01/04/20	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Waitomo DC	01/02/20	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No
NZTA Hawkes bay	01/08/20	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No	No
Ashburton DC	01/06/20	Yes	No	No	Yes	No	Yes	Yes	Yes	No	No
CIAL	11/05/20	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Clutha DC	11/08/20	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Paremoremo Prison Village	12/04/19 MERI since 01/07/19	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

AIAL	29/05/19 MERI since 01/11/19	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Thames Coromandel DC	01/12/19 MERI since 01/07/19	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Greater Wellington Regional Council	01/06/19 draft audit is with Meridian	No	No	No	No	No	No	No	Yes	No	No
NZTA South Canterbury	01/06/20	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Burnham Military Camp	01/06/18 MERI since 01/07/19	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Buller DC - Electronet	01/12/18	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Westland DC	01/06/20 MERI since 01/03/20	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.4 With: Clause 11 Schedule 15.3, Clause 15.37B & 16A.26 From: 01-Oct-19 To: 07-Jul-20	**MERI** Inaccurate submission information for several databases. One distributed unmetered database not yet audited since the DUML audit regime came into effect. Two distributed unmetered database audits overdue. The monthly database extracts used to derive submission from are provided as a snapshot and do not track changes at a daily basis as required by the code. 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 effectiveness of the controls is recorded as moderate as Meridian are working to resolve the issues found. The impact on settlement is major because the incorrect submission figures are major for some databases.

Actions taken to resolve the issue	Completion date	Remedial action status
Actions being taken to address issues with DUML databases are detailed in individual DUML audit reports. A DUML database for NZTA Kaitoke has been identified and will be audited before the end of the year. NZTA Waipukurau – the audit of this database was delayed as work on the council and NZTA databases in the Hawkes Bay region was being undertaken. This was expected to be completed by July however was delayed due to COVID. Work to establish a new database for ICP 7012031000CH80C is expected to be completed by the end of November and an audit will be completed as soon as possible after that. Greater Wellington Regional Council – the audit report will be finalised and submitted.	N/A Dec 2020 Dec 2020 31 Oct 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Actions being taken to address issues with DUML databases are detailed in individual DUML audit reports		

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

The registry list and meter installation details report as at 07/07/20 were examined to determine whether any ICPs with generation were supplied during the audit period. Processes for distributed generation were reviewed.

Audit commentary

MERI

Metering installations installed

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

Exemption 245 allows Meridian to use subtraction to determine submission information for ICP 0009805800AL991. This is discussed further in **section 1.1**.

Subtraction is also used for settlement for ICP 0000100018WP6F5. It is a residual load ICP for Kiwirail and is settled by difference. OTI0111 is a local network that is reconciled by differencing. While rare, this is permitted under the Code, so an exemption is not required.

ICP 0000840407WE388 switched to Meridian on 01/01/19. Subtraction is used to derive submission information. The previous trader had an exemption, but this was only valid for the time they were the trader. Meridian have applied to the Electricity Authority for an exemption for this ICP.

Distributed generation

Monthly, Meridian generates reports of all ICPs with installation type B with RPS profile. The revenue assurance team checks that the ICPs have approval to generate from the network, and then arranges for generation metering to be installed with the customer. Once compliant metering is installed, the profile is updated.

No generated energy is gifted. Meridian arranges for compliant metering to be installed unless all the generated electricity is to be used within the customer's installation.

There are 50 NHH ICPs where the installation type is B but the profile is not PV1 or EG1. MERI is actively working on this list and many have been confirmed as having generation but not import/export metering. ICP 0005786762RNB36 has a legacy meter running backwards when the generation exceeds the load. 13 of the 50 have a generation type of "other" or "liquid fuel". Separate to these 50 ICPs, there are 32 ICPs with the PV1 profile but the fuel type is "other". 18 of the 32 on the Orion network are believed to have solar generation connected to batteries. It is not clear if these installations can also generate to the network and it's also not clear whether the PV1 profile is appropriate. I recommend MERI investigates this issue.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause Clause 10.13, Clause 10.24 and 15.13.	Check whether installations with solar generation and batteries installed should have the PV1 profile.	We are clarifying with the Authority whether PV1 is the correct profile for these installations and also what fuel type should be recorded by the distributor in these instances.	Identified

All HHR ICPs with installation type "B" or "G" had a record in the July HHR aggregates file, confirming "I" flow kWh is correctly dealt with.

Bridged meters

Meridian does not initiate meter bypass instructions to any MEP or contractor. If they request a remote reconnection, the MEP is expected to either conduct this, or make necessary arrangements for reconnection without bypassing. Where it is necessary to bypass a meter for safety reasons after hours, Meridian's contracts with service providers specify that they must return the following day to unbridge the meter.

12 examples of bridged meters were examined. The corrections were reviewed in **section 2.1**. The existence of bridged meters is recorded as non-compliance below.

MERX

MERX ICPs potentially having generation are investigated regularly using the same process as for MERI. The reporting available in Flux is being reviewed to improve its usability. Currently it provides a snapshot but doesn't allow a user to easily track progress unless it is at an account level.

There are 103 ICPs with an installation type of "B" without the PV1 or EG1 profile. MERX is currently investigating these.

There are 49 ICPs with a fuel type of "other" where the profile is PV1. I have recommended above that Meridian checks these to determine if PV1 is the appropriate profile.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: Clause 10.13, 10.24 and 15.13 From: 01-Oct-19 To: 07-Jul-20	**MERI** Electricity not quantified from the time generation is installed for up to 50 ICPs. While meters were bridged, energy was not metered and quantified according to the code for 12 ICPs. ICP 0000840407WE388 is calculated by subtraction without an exemption being in place. **MERX** Up to 103 ICPs with an installation type of "B" without the PV1 or EG1 profile. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because 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
As reported meters are bridged when necessary and this will continue to be the case. ICP 0005786762RNB36 –Electrical work is required by the owner of this property before import/export metering can be installed and they have not been engaging with us on this. We will continue to follow this up. ICP 0000840407WE388 – an exemption application was submitted to the Authority in May 2020 – this is being reviewed at the December 2020 compliance committee meeting.	Ongoing Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We are reviewing current reporting available and confirming responsibility for MERI and MERX in relation to ICPs with DG indicated on the registry so these are regularly reviewed, and steps taken to arrange import/export metering where required (i.e. where DG is confirmed as installed and is capable of exporting to the network).	31 Jan 2021	

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

Audit commentary

An asset owner must, for each GIP that connects to the grid, ensure that there are one or more certified metering installations for the GIP. Meridian is responsible for the GIPs shown in the table below.

Responsible party	Description	NSP	MEP	Certification expiry date (NSP table)
MERI	AVIEMORE	AVI2201MERIGG	MERG	23/07/2022
MERI	BENMORE	BEN2202MERIGG	MERG	24/03/2021
MERI	MANAPOURI	MAN2201MERIGG	MERG	25/01/2021
MERI	OHAU A	OHA2201MERIGG	MERG	21/06/2021
MERI	OHAU B	OHB2201MERIGG	MERG	5/06/2022
MERI	OHAU C	OHC2201MERIGG	MERG	12/06/2022
MERI	WOODVILLE	WDV1101MERIGG	MERG	13/08/2022
MERI	WAITAKI	WTK0111MERIGG	MERG	16/05/2021
MERI	WESTWIND	WWD1102MERIGG	MERG	11/08/2023
MERI	WESTWIND	WWD1103MERIGG	MERG	12/08/2023

All metering installations have current certification. None have been recertified during the audit period.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

Audit observation

I walked through the process to manage profiles and ensure meters and control devices are certified where the control device is used for reconciliation purposes. The walk though included reviewing reports used for profile management, and profile changes.

The registry list as at 07/07/20 and meter installation details report were reviewed to confirm the profiles used during the audit period and confirm the certification details for the affected ICPs.

MERI

15,900 ICPs use profiles that require AMI or HHR metering, or a certified control device to be installed.

MERX

10,079 ICPs use profiles that require AMI or HHR metering, or a certified control device to be installed.

Audit commentary

MERI

Meridian uses SAS to compare Velocity meter details, registry meter details, and trader notifications, before business day 13 submissions are produced each month. SAS reports are used to identify:

- ICPs where meter certification is due to expire - these are changed back to RPS on an actual reading date,
- ICPs with a smart meter profile, and no smart meter installed - these are changed to a valid profile on an actual reading date, or
- ICPs which are eligible to be moved to a profile - these are changed to a valid profile on an actual reading date.

Where profile changes are identified a file is output from SAS and imported into Velocity. The audit compliance report is also used to check for profile accuracy.

A separate file is used to update the registry. Staff ensure that the actual read date used for the change is recent. The following day a manual check is performed to confirm the registry and Velocity match and are up to date.

Meridian uses the following profiles which require control device certification if AMI metering is not installed:

Profile Code	Profile Description	Requires control device certification
E08	Night only	Yes
E11	Night with boost	Yes
E13	Night with boost	Yes
T07	Day/Night	Yes
T23	Day/Night	Yes
TOC	Day/Night	Yes
TON	Day/Night	Yes

I checked exceptions in the audit compliance report and found nine ICPs did not have HHR or AMI metering installed and did not have a certified control device. In two cases, the profile has since been updated. For the remaining seven ICPs, Meridian are awaiting a meter reading to ensure the profile change occurs on an actual reading.

MERX

MERX uses the same process to confirm the correct profiles have been applied.

MERX uses the following profiles which require control device certification if AMI metering is not installed:

Profile Code	Profile Description	Requires control device certification
E08	Night only	Yes
E11	Night with boost	Yes
E13	Night with boost	Yes
T07	Day/Night	Yes
T23	Day/Night	Yes
TOC	Day/Night	Yes
TON	Day/Night	Yes

The audit compliance report confirmed that either AMI metering is installed, or a certified load device is present.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.3 With: Clause 33 Schedule 10.7 and clause 2(2) Schedule 15.3 From: 01-Oct-19 To: 07-Jul-20	**MERI** Seven ICPs had a profile requiring control device certification without a certified control device or an AMI meter installed. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as strong as they are sufficient to mitigate the risk most of the time. The audit risk rating is low because Meridian has robust controls in place and a very small number of ICPs were affected.

Actions taken to resolve the issue	Completion date	Remedial action status
A permanent estimate has been created for the 7 ICPs identified so profile changes can be processed.	October 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Existing controls to monitor control device certification will continue.		

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, the MEP, or the customer.

Upon identifying a possible defective meter, a field services job is raised to investigate and resolve the defect.

MERI

A sample of 12 possible defective meters were identified. In all of the instances Meridian identified the issue and raised a fault with the MEP. Corrections were processed in all instances and are discussed further in **section 2.1**.

MERX

One ICP had a defective meter, which was identified through validation. The MEP was advised. A correction was processed, which is discussed further in **section 2.1**.

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 and clock synchronisation processes were examined.

HHR

All HHR data is collected by EMS, and data transmission and clock synchronisation processes were reviewed as part of their agent audit. In that audit, it was identified that there were two ICPs that were not read within the interrogation cycle:

ICP	Maximum interrogation cycle	Comments
0000167766TR717	30 days	Last interrogation 01/11/19
0000545312NR81F	31 days	Data was provided 17/03/20 but still not within the interrogation cycle.

ICP 0000657986UN559 is read manually and has been for approximately 18 months by Accucal. Clock synchronisation occurs, but the event log is not downloaded. I discussed this with Accucal on 16/06/20 and they agreed to collect the event log and send it to EMS each month. This is recorded as non-compliance below.

MERI NHH and AMI

Manual NHH data has been provided by Wells via SFTP. NHH AMI data has been provided by MEPs via SFTP. I traced a sample of reads for NHH ICPs for each MEP from the source files to Velocity.

Clock synchronisation processes for agents and MEPs were reviewed as part of their agent and MEP audits. Agents advise Meridian of clock synchronisation discrepancies and adjustments.

MERX

NHH AMI data has been provided by MEPs via SFTP. I traced a sample of reads for NHH ICPs for each MEP from the source files to Flux.

Clock synchronisation processes for agents and MEPs were reviewed as part of their agent and MEP audits. Agents advise MERX of clock synchronisation discrepancies and adjustments.

Generation

Meridian collects generation information and is responsible for clock synchronisation.

I matched the generation data received by Stark to the data received from SCADA for Benmore for April 2020. There have been no time clock errors occur during the audit period, but I confirmed the process is unchanged.

Audit commentary

HHR

HHR data transmission and clock synchronisation was reviewed as part of EMS' agent audit and found to be compliant.

NHH MERI

Fulfilment of the interrogation systems requirements, and clock synchronisation was examined as part of the MEP and agent audits.

I traced a sample of reads for each MEP from the source files to Velocity. All were recorded and labelled correctly with the actual time of interrogation.

MEPs advise Meridian of clock synchronisation events by email.

Clock synchronisation events are reviewed to determine whether any Meridian action is required, and a memo is added to the affected customer account in Velocity. No action was required for the sample of clock synchronisation events reviewed.

NHH MERX

Fulfilment of the interrogation systems requirements, and clock synchronisation was examined as part of the MEP and agent audits.

I traced a sample of reads for each MEP from the source files to Flux. All were recorded and labelled correctly with the actual time of interrogation.

MEPs advise MERX of clock synchronisation events by email.

Clock synchronisation events are reviewed to determine whether any MERX action is required. No action was required for the sample of clock synchronisation events reviewed

Generation

The Stark system retrieves meter information from the generation meters every half hour, and data is also received via SCADA.

I matched the generation data received by Stark to the data received from SCADA for Benmore for April 2020 and there was a match.

Generation metering and activity is monitored in real time by the generation team, who report any metering or data issues to the reconciliation team. As metering issues are identified and acted upon quickly, this ensures that the metering information is obtained within the maximum interrogation cycle.

Meridian synchronises Stark against an internet time source continuously during the day.

During interrogation, a comparison occurs between data logger and Stark. Clocks are corrected automatically for all differences below five seconds. If the clocks are different by more than five seconds, the clock is adjusted manually.

Stark sends an automated email to the reconciliation team where the number of seconds recorded does not match the expected number for the half hour. There have been no clock synchronisation errors therefore there were none to check.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.5 With: Clause 2 Schedule 15.2 From: 01-Nov-19 To: 15-Jun-20	Data not collected within the maximum interrogation cycle for two ICPs. Event log not downloaded for ICP 0000657986UN559. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	The controls are recorded as moderate because 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
0000167766TR717, 0000545312NR81F. Attempts were made to interrogate both meters, but both has issues that prevented data downloading. Faults were logged with the MEPs. ICP 0000657986UN559. The data is downloaded and provided by an ATH. The ATH has indicated they will provide events in the future.	June 2020 June 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
A process to improve the tracking of manual reads and events has been introduced.	June 2020	

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

Code reference

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

Code related audit information

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

All validated meter readings must be derived from meter readings.

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

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

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

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

Audit observation

The data collection process was examined. I traced reads for a sample of 10 manually read NHH ICPs from the source files to Velocity.

Processes to provide meter condition information were reviewed as part of Wells' agent audit. Meridian's processes to manage meter condition information were reviewed, including viewing work queues and examples of meter condition issues.

Processes for customer and photo reads were reviewed.

Audit commentary

MERI

I traced reads for a sample of 10 manually read ICPs from the source files to Velocity. All were recorded and labelled correctly.

Data validation

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

Wells monitors meter condition, as required by schedule 15.2 and provides information on meter condition along with the daily reads, and monthly summary report containing missing seal and broken seal events. The daily meter condition information is imported into Velocity. Based on the condition code, it is automatically directed to a work queue and then assigned to a team member. Work queues are cleared by each team daily.

I viewed examples of the following types of meter condition events and noted that they had been appropriately actioned, including:

- meter number mismatch, including a different meter being present or a meter number being recorded incorrectly,
- missing or broken seals,
- signs of tampering or damage, and
- potentially unsafe installations.

There were no phase failure events available to check, but phase failure is one of the issues checked by Wells during NHH meter reading.

Meter condition issues can also be identified through Meridian's meter read validation process, or by Customer Services Representatives (CSRs). CSRs raise field services jobs through Velocity. When the paperwork is returned it is automatically linked to the customer account and directed to a work queue for action.

The disconnection and reconnection reads returned via the "CJR" system are not received in a format that can be loaded into Velocity as a validated meter read. These are expected to be manually entered when an ICP switches out as part of the switch out process. For ICPs that remain with Meridian, the volume is calculated as forward estimate until a validated read is entered. Once reconnected, a scheduled AMI and meter reader reads will be imported and validated, and those reads will be used to calculate historic estimate. Forward estimate continues to be calculated until validated reads are entered, and this contributes to the FE volumes remaining at 14 months reported in **section 12.8**.

Disconnected ICPs with consumption after their last validated reading are reviewed on a monthly report. Reads are manually validated for volumes greater than 200 kWh by the reconciliation team, which enables them to be used by the historic estimate calculation process. Any ICPs with volumes less than this remain as unvalidated reads and are therefore ignored by the historic estimate calculation process.

Customer and photo readings

Wells provide customer readings in the notes field and record a no read.

Customer readings provided directly by customers are recorded as customer reads in Velocity, and photo readings are recorded as photo reads. Customer and photo reads are only treated as actuals by the historic estimate process if they are validated. Velocity treats all previously validated reads the same regardless of their source. Therefore, a customer or photo read can be validated against another

customer or photo read which was previously validated and not a set of validated actual readings from another source as required by the code. No examples of this were found during the audit but I confirmed that the process remains unchanged since the last audit.

MERX

There are a small number of ICPs read manually by Wells. Validation is the same as described for MERI.

The meter condition notes from manual meter reading files are uploaded into Flux.

Flux treats customer and photo reads as unverified unless a person manually validates them against another set of reads and applies a different status.

Disconnection reads are manually entered into Flux.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.6 With: Clause 5 of Schedule 15.2 From: 01-Oct-19 To: 07-Jul-20	**MERI** Customer reads are treated as actual reads when they are not validated against a set of actual meter reads from another source in some instances. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The audit risk impact is expected to be low as the volume of reads affected by this is low and lessening as customers are migrated to the Flux system.

Actions taken to resolve the issue	Completion date	Remedial action status
This issue will be resolved when all ICPs have been migrated to Flux.	Sept 2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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.

All AMI systems have a clock synchronisation function, which ensures correct time-stamping.

MERI

Meridian imports the midnight AMI midnight readings, which are applied as at 2400hrs. Manual readings taken by Wells are provided with a read time, which is recorded in Velocity.

- I traced a sample of AMI reads to Velocity for every MEP. All were time-stamped at midnight, apart from Arc meters, which had time-stamps throughout the day.
- I traced manual NHH reads to Velocity for a sample of 10 ICPs. All were recorded correctly with their read date and time.

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

The content of CS files was examined in **sections 4.3** and **4.10**.

MERX

I traced a sample of AMI readings from source files through to Flux. In all cases the raw data was correctly time stamped as 23.59.59 the date before midnight. The previous audit recorded readings which are provided as at 23.59.59 on the read date were rolled forward one second on import into Flux to be recorded against 00.00.00 the next day. This was because 23.59.59 is reserved for stop reads (including meter removals and decommissions). Other readings were imported with the date and time recorded in the read file. This practice has changed, and reads are now timestamped as 23.59.53, which ensures they have the correct date.

Audit outcome

Compliant

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

Code reference

Clause 7(1) and (2) Schedule 15.2

Code related audit information

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

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

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

Audit observation

The process to manage missed reads was examined, including review of the read attainment business rules and procedural documentation.

A sample of 10 ICPs not read during the period of supply were reviewed.

Audit commentary

MERI

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

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

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

The process for missed reads was examined.

For manually read meters, the reasons that reads cannot be obtained are recorded by Wells and provided along with the other meter readings. This information is imported into Velocity and directed to work queues for review by the billing team.

Manual reads are scheduled every two months, and the missed read process begins after the first missed read. The process is customised depending on the no read code provided by Wells and whether the meter is AMI.

Unless the missed read occurred because the meter reader was unable to complete the reading due to extreme events such as a natural disaster or severe weather, action is taken after the first missed read:

- if no read is received for an AMI meter, it is sent to the data queue to check for reads on other dates and follow up with the MEP if necessary,
- if the meter appears to have been changed or removed, it is sent to the metering and field services queue,
- if a problem with the meter or its location is preventing reading, it is sent to the billing queue,
- if the property or meter could not be found, the ICP is in the wrong reading round, the customer refused access, or stated they were supplied by another retailer, it is sent to the billing queue, and
- if health and safety issues are identified, it is directed to the Health and Safety team.

A letter to the customer is automatically generated where access is prevented due to an issue which can be resolved with the customer, such as overgrown vegetation, locked gates or doors, dogs, or a closed business. A letter is generated for the first two or three missed reads, depending on the issue, and then directed to the billing team queue for any subsequent missed reads.

There are documented procedures which explain action to be taken to resolve exceptions. I reviewed these procedures and if followed these will ensure that the best endeavours requirements are met.

Unread account managed sites are managed in slightly different way. The Account Manager is notified of a no read site and they are requested to follow up with the customer. This is then reliant on the Account Manager to action and log their actions into Gentrack. Meridian are reviewing this process to improve this process as not all requests are actioned and recorded in Gentrack as expected. A one-off blanket email was sent to all unread account managed sites requesting the customers to make contact to arrange access in an attempt to get these resolved.

If AMI reads cannot be obtained for an ICP for 60 days, the ICP is moved to a manual meter reading route. Meridian routinely contact customers first, to determine whether they have switched their electricity supply off. AMI meter reading providers also notify Meridian where reads cannot be obtained:

- AMS and Intellihub both send weekly emails containing non-communicating AMI meters, which ask Meridian to raise a field services request where necessary,
- information on non-communicating Smartco meters is passed to Meridian by AMS, and
- Arc sends details of non-communicating meters in batches, but not every week; if the communication issues cannot be resolved the Arc meter is replaced with an AMS meter.

Meridian receives no read reports from MEPs. These are reviewed and actioned appropriately. The MEPs are providing this information in a consistent format and Meridian are working with Gentrack to enable this to be imported into their systems and directed to work queues appropriately.

Billing management reports on no reads weekly. They continue to run campaigns to improve read attainment, focussing on obtaining reads for sites which have not had a reading for 12 months or longer first.

Meridian's read attainment processes meet the requirements of the code, but where the period of supply is less than 90 days the no read process will not have been completed and therefore compliance cannot be met in these instances.

A report of ICPs not read during the period of supply was provided, where the period of supply ended between October and July 2020. 12 ICPs were not read during the period of supply. This was a lot less than the 62 ICPs reported in the last audit and I checked that the report criteria was correct to confirm list was complete. Of these, eight were supplied for less than 90 days which was during the COVID 19 lockdown. For the remaining four ICPs:

- two ICPs were affected by COVID19,
- exceptional circumstances were proven for ICP 0000508009CEC70, and
- the actions for ICP 0008413036NV860 did not meet the exceptional circumstance and best endeavours threshold; this is recorded as non-compliance below.

MERX

The MERI no read process is expected to be used for MERX. There is a project underway to replicate the reporting available in Gentrack in Flux. The current process is:

- an email is sent to the customer requesting the customer contact Meridian to arrange a read when the first bill is issued as an estimate due to no read being gained,
- the process beyond this is managed manually using the existing reporting in Flux which is provided as a snapshot and doesn't easily allow the user to record at this level the next action taken, and
- operators trigger the next action following the MERI process depending on the cause of the no read.

A report of ICPs not read during the period of supply was provided, where the period of supply ended between October and July 2020. 27 ICPs were not read during the period of supply. I checked a sample of four longest and found:

- two ICPs were affected by COVID19, and

- two did not have exceptional circumstances and the best endeavours threshold was not met; this is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 15-Nov-19 To: 27-May-20	**MERI** One ICP was not read during the period of supply and exceptional circumstances were not proven. **MERX** Two of four ICPs sampled were not read during the period of supply and exceptional circumstances were not proven. 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 whilst MERI's processes are strong, MERX processes are weak. This is expected to improve with reporting enhancements planned. The impact is assessed to be low as the volume of unread during the period of supply represent a very small number of the overall customer base.

Actions taken to resolve the issue	Completion date	Remedial action status
As these ICPs are no longer supplied by Meridian no action can be taken.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
MERI Existing controls will continue. **MERX** Development of a partially automated "no read" process in Flux is in progress with delivery scheduled by the end of the year.	31 Dec 2020	

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 March to May 2020 were provided.

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

MERI

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
Mar 2020	387	147	899	99.42%
Apr 2020	387	151	962	99.35%
May 2020	375	156	967	99.32%

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

Meridian provided report as at 26/06/20, which recorded 967 ICPs where a reading had not been obtained for the previous 12 months. 101 of the 967 were vacant.

I reviewed ten ICPs not read in the previous 12 months to determine whether exceptional circumstances exist, and if Meridian had used their best endeavours to obtain readings. For eight out of ten examples checked, exceptional circumstances and best endeavours were not proven. Three of these were account managed ICPs. It appears in the remaining five instances that the log of communication sent to the customer was not always logged as expected suggesting that the expected process once delivered to a work queue is not always being actioned. This is recorded as non-compliance below.

The reports reviewed for March to May 2020 all met the reporting requirements and were submitted on time.

MERX

All MERX ICPs were read at 12 months.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.9 With: Clause 8(1) and (2) Schedule 15.2 From: 01-Oct-19 To: 07-Jul-20	**MERI** Exceptional circumstances and best endeavours were not proven for eight of ten examples checked. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The audit risk rating is assessed as low as there is an overall high level of ICPs being read once within 12 months.

Actions taken to resolve the issue	Completion date	Remedial action status
Resolution of long term unread ICPs is a priority for Meridian and we are applying resource to focus on this. 80% of ICPs in the long-term unread bucket are across 10 customers (primarily account managed councils) and we will be working with those customers to obtain reads for these problematic sites.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
MERX Development of a partially automated "no read" process in Flux is in progress with delivery scheduled by the end of the year.	31 Dec 2020	

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

Code reference

Clause 9(1) and (2) Schedule 15.2

Code related audit information

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

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

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

Audit observation

The meter reading process was examined. Monthly reports for March to May 2020 were provided.

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

Audit commentary

The monthly meter reading reports provided were reviewed.

MERI

Month	Total NSPs where ICPs were supplied > 4 months	NSPs <90% read	ICPs unread for 4 months	Overall percentage read
Mar 2020	387	35	3,321	97.88%
Apr 2020	387	35	3,762	97.46%
May 2020	375	40	3,824	97.32%

As discussed in **section 6.8**, there are processes in place monitor read attainment, and attempt to resolve issues preventing read attainment. This has declined during the audit period with almost double the number of ICPs not read at four months, although overall percentage read levels remain high.

I reviewed 10 ICPs not read in the previous four months to determine whether exceptional circumstances exist, and if Meridian had used their best endeavours to obtain readings. For nine out of ten examples checked, exceptional circumstances and best endeavours were not proven. Four of these were account managed ICPs. It appears in the remaining five instances multiple communications were made but not using two forms of communication e.g. five letters sent but no email or text attempted. This suggests that the expected process once delivered to a work queue is not always being actioned. This is recorded as non-compliance below.

MERX

All MERX ICP but one ICP was read at four months. This was checked and found that a read has since been gained for this site.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.10 With: Clause 9(1) and (2) Schedule 15.2 From: 01-Oct-19 To: 07-Jul-20	**MERI** Exceptional circumstances and best endeavours were not proven for nine of ten examples checked. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The audit risk rating is assessed as low as the number of NSPs not meeting the 90% read threshold within four months is low.

Actions taken to resolve the issue	Completion date	Remedial action status
7 of the 10 examples have now had reads taken. The remaining 3 are long term unread and as per our comments in section 6.9 are a priority to resolve. We note that for the period reviewed, COVID restrictions did have an impact on manual meter read activity and this has contributed to a higher than usual number of ICPs not read at 4 months.	Sept 2020 Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
MERI We will continue with our current processes and controls. **MERX** Development of a partially automated "no read" process in Flux is in progress with delivery scheduled by the end of the year.	Ongoing 31 Dec 2020	

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:

- Wells for manually read meters, and
- MEPs for AMI meters.

The data interrogation log requirements were reviewed as part of their MEP and agent audits.

Audit commentary

MERI and MERX

Compliance with this clause has been demonstrated by Wells and MEPs as part of their own audits.

Audit outcome

Compliant

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

Code reference

Clause 11(1) Schedule 15.2

Code related audit information

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

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

Audit observation

HHR

HHR data is collected by EMS. The data collection requirements were reviewed as part of their agent audit.

Generation

Generation HHR data is collected by Meridian, using STARK.

Audit commentary

HHR

Compliance with this clause has been demonstrated by EMS as part of their own audit.

Generation

Meridian interrogates generation station meters using STARK. System overview information was provided to confirm this.

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

HHR data is collected by EMS. The interrogation data requirements were reviewed as part of their agent audit. In this audit it was identified that ICP 0000657986UN559 is read manually and has been for approximately 18 months by Accucal. Clock synchronisation occurs, but the event log is not downloaded. The auditor discussed with this with Accucal on 16/06/20 and they agreed to collect the event log and send it to EMS each month. This is recorded as non-compliance below.

Generation

Generation HHR data is collected by Meridian, using STARK. The Stark interrogation process was confirmed with Meridian.

Audit commentary

HHR

Compliance with this clause has been demonstrated by EMS as part of their own audit.

Generation

Generation data is collected every half hour by Meridian. The following information is collected during each interrogation of HHR metering:

- the unique identifier (device ID) of the meter or data logger,
- the connection time, disconnection time and recorder time,
- the half-hour metering information for each trading period,
- event log, and
- interrogation log.

The event information is collected separately by Quasar Systems Ltd, as an agent to Meridian. This is because the Stark system has difficulty downloading event information. As described in **section 6.5**, the event information is analysed, and appropriate action is taken in accordance with the code.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.13 With: Clause 11(2) Schedule 15.2 From: 01-Feb-19 To: 16-Jun-20	Event log not downloaded during interrogation of ICP 0000657986UN559. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because 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**
			Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	
The data is downloaded and provided by an ATH. The ATH has indicated they will provide events in the future.		June 2020	

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

HHR data is collected by EMS. The data interrogation log requirements were reviewed as part of their agent audit.

Generation

Generation HHR data is collected by Meridian, using STARK. The Stark interrogation process was confirmed with Meridian.

Audit commentary

HHR

Compliance with this clause has been demonstrated by EMS as part of their own audit.

Generation

An interrogation log is generated by Stark to record details of all interrogations. Appropriate action is taken where problems are apparent. The interrogation log contains the following information:

- the unique identifier of the meter or data logger,
- the time of commencement of interrogation,
- the date of interrogation,
- the operator identifier (machine id),
- the clock errors outside the range specified in clause 12,
- the method of interrogation, and
- the identifier of the reading device used for interrogation (where applicable).

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

HHR

HHR data is collected by EMS. Trading period duration was reviewed as part of their agent audit.

Generation

Generation HHR data is collected by Meridian, using STARK. Processes to check trading period duration were reviewed.

Audit commentary

HHR

Compliance with this clause has been demonstrated by EMS as part of their own audit.

Generation

Stark sends an automated email to the reconciliation team if the number of seconds recorded does not match the expected number for the half hour. Clock synchronisation is discussed further in **section 6.5**.

Audit outcome

Compliant

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

Code reference

Clause 18 Schedule 15.2

Code related audit information

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

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

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

Audit observation

Processes to archive and store raw meter data were reviewed. Raw meter data from at least 48 months prior was reviewed to ensure that it is retained. Meridian's agents retain a copy of the raw meter data, and their compliance with the archiving and storage requirements were reviewed as part of their agent audits.

Meridian's own audit trails were reviewed in **section 2.4**.

EMS are responsible for the archiving and storage of HHR meter data, compliance was assessed as part of their agent audit.

I traced reads for a sample of 10 NHH metered ICPs from the source files to Velocity. I matched the generation data received by Stark to the data received from SCADA for Benmore for April 2020.

Audit commentary

HHR

Compliance with this clause has been demonstrated by EMS, as part of their own audits.

Generation

I reviewed Stark meter data from 2016, confirming that data is archived for more than 48 months as required by the code.

Access to Stark is restricted, and password protected. I matched the generation data received by Stark to the data received from SCADA for Benmore for April 2020. The data matched.

I reviewed audit trails within Stark and confirmed that they record the required details if a meter reading is modified or replaced.

NHH MERI

Compliance with this clause has been demonstrated by Wells, and MEPs as part of their own audits.

I reviewed NHH meter read data in Velocity from 2008 during the audit. Data is archived for more than 48 months as required by the code.

Password protection is in place for Velocity to ensure unauthorised personnel cannot access raw meter data. I traced reads for a sample of 10 ICPs from the source files to Velocity for NHH meters. The readings were the same for all ICPs, confirming the security of the process

Review of audit trails in **section 2.4** confirmed that reads cannot be modified without an audit trail being created. Users are not able to edit actual meter readings, apart from changing the read status to invalidated, but it is possible to delete the invoice header to remove the associated readings from Velocity and then re-enter the reads as estimates.

NHH MERX

When this data reaches Flux, the level of security is robust, and data cannot be accessed by unauthorised personnel.

All data has been retained and will continue to be retained.

Compliance with clause 18.3 of schedule 15.2 was examined, which requires that ".....meter readings cannot be modified without an audit trail being created." Readings cannot be modified without an audit trail being created, and the original data is retained. 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, and non-metering information was viewed to determine whether the archiving requirements were met.

Streetlight on and off times are collected and archived by EMS, associated processes were reviewed as part of their agent audit.

Audit commentary

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

Compliance with this clause has been demonstrated by EMS as part of their own audit.

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

MERI

Where errors are detected during the validation process, Meridian may request a check meter reading for manually read meters, or review AMI readings for surrounding dates. If an original meter reading cannot be confirmed by another reading, the original read is invalidated so it will not be used for billing or reconciliation. An estimated reading is used for billing and forward estimate is created for reconciliation.

Transposed meters are corrected by removing and reinstalling the registers correctly in Gentrack/ Flux or swapping the readings to the correct registers.

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 correction of HHR meter readings were reviewed. A sample of two HHR corrections were reviewed.

Audit commentary

Where errors are detected during validation of HHR information, and check metering data is not available, then data from a period with a quantity and profile similar to that expected is used.

HHR

HHR corrections are processed by EMS, and compliance was recorded in their agent audit.

Generation

Meridian obtains Transpower's SCADA data, which is used as a comparison to their generation quantities and can be used as a basis for correction if necessary.

I checked the records for Manapouri for 29/07/20 where due to a communication issue the data for one trading period where the aggregate data had to be added up from all meters for one interval. Volumes were confirmed to be correct and an appropriate audit trail was viewed.

Audit outcome

Compliant

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

Code reference

Clause 19(3) Schedule 15.2

Code related audit information

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

Audit observation

Error and loss compensation arrangements were discussed. The change control process was reviewed.

Audit commentary

Compensation arrangements are in place for generation stations where required, including the White Hill generation station. The loss factor is applied within the station metering, and not to the raw data after interrogation.

The loss factors are provided by Powernet annually, and Meridian have a reminder to check for these two months before the change is expected. Meridian raises a service request for their contractor to update the loss factor in the meter.

I reviewed the change control process for the loss factor update in April 2020, and noted that the change was requested, approved, and implemented as expected. I also checked the loss calculation inputs for

White Hill, Manapouri and Te Apati. I confirmed that the loss compensation functionality was "enabled" and contained the appropriate inputs of transformer losses and line losses.

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**.

Audit commentary

For all NHH and generation corrections reviewed in **sections 2.1, 8.1** and **8.2**, I confirmed that the raw meter data was not overwritten, and the journals created were compliant.

EMS' agent audit report recorded compliance for HHR corrections.

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 Meridian'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

MERI

As discussed in **section 6.6**, actual reads are available but are not being validated resulting in the volumes being reconciled using forward estimates.

Photo and customer readings are not recorded as actual readings for submission purposes but as noted in **section 6.6**, they are used as validated reads for submission if they can be validated against another validated read. Velocity treats all previously validated reads the same regardless of their source. Therefore, a customer or photo read can be validated against another customer or photo read which was previously validated, instead of a set of validated actual readings from another source.

Compliance for HHR readings is recorded in EMS' agent audit report.

Some agreed switch readings did not have the correct read type recorded in Velocity. Where the agreed switch reading is an estimate, the correct read type cannot be recorded in Velocity because the correction is processed by creating a new meter. The estimated read type is not available for opening reads on new meters. The following ICPs have incorrect read types recorded for their switch event readings as discussed in **sections 4.4** and **4.11**:

- 0000006509NTEFA, 17/01/20, had an actual reading recorded as an estimate.

Some read types were incorrectly recorded in switch event files, as discussed in **sections 4.3** and **4.10**:

ICP	Event date	Issue
0000001168DE9A9	24/03/2020	Actual reading labelled as estimate.
0005818656RN5BE	11/01/2020	Actual reading labelled as estimate.
1001153475CK186	20/02/2020	Actual readings labelled as estimates.

MERX

The following ICPs have incorrect read types recorded in Flux for their switch event readings as discussed in **sections 4.4** and **4.11**:

ICP	Event date	Issue
0000010498NT97D	3/02/2020	Estimate labelled as Actual
0000025219UNEF0	27/12/2019	Estimate labelled as Actual
0000057853TR7EF	19/05/2020	Estimate labelled as Actual
0004863614BUCD1	20/02/2020	Estimate labelled as Actual
0005215315RN757	29/04/2020	Estimate labelled as Actual
0005710630WM2B4	2/04/2020	Estimate labelled as Actual

Some read types were incorrectly recorded in switch event files, as discussed in **sections 4.3** and **4.10**:

ICP	Event date	Issue
0000001168DE9A9	24/03/2020	Actual reading labelled as estimate.
0000001617DEC28	11/01/2020	Actual reading labelled as estimate.
0000002216DEE8C	20/02/2020	Actual readings labelled as estimates.
0000000366DE195	15/01/2020	Actual readings labelled as estimates.
0000000877DE473	24/01/2020	Actual readings labelled as estimates.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.1 With: Clause 3(3) Schedule 15.2 From: 01-Oct-19 To: 07-Jul-20	Some incorrectly labelled meter readings, as follows: **MERI** At least four ICPs with actual readings labelled as estimates. **MERX** At least six ICPs with estimates labelled as actuals. At least five ICPs with actuals labelled as estimates. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**

Low	Controls are rated as weak because they do not adequately mange the risk of incorrect identification of readings. The audit risk impact is low as the volume of reads affected by this is low.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer to sections 4.3, 4.4, 4.10 and 4.11 for comments in relation to errors identified with labelling of switch event meter reads.		

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 **section 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 **section 12**, to confirm that volume was based on readings as required.

HHR

HHR data is collected by EMS and compliance was assessed as part of their agent audit.

NHH

I traced a sample of meter data from the source files to Meridian's systems as discussed in **section 2.3**, to confirm whether readings were rounded or truncated on import.

Generation

I matched the generation data received by Stark to the data received from SCADA for the first six half hours of a day for five generation station meters.

Audit commentary

MERI

HHR

EMS' processes were reviewed as part of their agent audit and found to be compliant.

NHH

A sample of reads and volumes were traced from the source files to MERI's systems detailed in **section 2.3**. Data provided by Wells, AMS (for AMS and ARC meters), Intellihub (for Intellihub and Counties Power meters), FLCM and WEL Networks (WASN) is not rounded or truncated on import. Data provided by Arc and AMS (for Smartco meters) is truncated to zero decimal places. Rounding occurs prior to the creation of volume information. This is recorded as non-compliance.

Generation

I matched the generation data received by Stark to the data received from SCADA for one station for the entire month. The data matched and was recorded to eight decimal places.

MERX

A sample of reads and volumes were traced from the source files to Flux. Data provided by Wells, AMS (for AMS and ARC meters) and FCLM is not rounded or truncated on import. Data provided by Arc and AMS (for Smartco meters), Intellihub (for Intellihub and Counties Power meters) and WEL Networks (WASN) is truncated to zero decimal places. Rounding occurs prior to the creation of volume information. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.3 With: Clause 3(5) Schedule 15.2 From: 01-Oct-19 To: 07-Jul-20	**MERI** Raw meter data is truncated upon receipt and not when volume information is created for Arc and AMS (for Smartco meters) provided reads. **MERX** Raw meter data is truncated upon receipt and not when volume information is created for Arc and AMS (for Smartco meters), Intellihub and WEL network MEP provided reads. Potential impact: None Actual impact: None 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. There is very little impact because no metered consumption information is "missing", and the unmetered differences are very small, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We are investigating why Flux is truncating reads for some MEPs and will request a system change to resolve this following that investigation.	April 2021	

9.4. Half hour estimates (Clause 15 Schedule 15.2)

Code reference

Clause 15 Schedule 15.2

Code related audit information

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

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

Audit observation

The HHR and generation data estimate processes were examined.

Audit commentary

Where HHR data must be estimated, and check metering data is not available, then data from a period with a quantity and profile similar to that expected is used.

HHR

HHR estimation is completed by EMS, and compliance was confirmed as part of their agent audit.

Generation

Correction processes for generation are described in **section 8.2**. The same process would be used in the unlikely event that estimation was conducted. No estimations were conducted during the audit period.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 15.2

Code related audit information

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

> *16(2)(a) - confirmation that the meter reading or estimated reading relates to the correct ICP, meter, and register*
>
> *16(2)(b) - checks for invalid dates and times*
>
> *16(2)(c) - confirmation that the meter reading or estimated reading lies within an acceptable range compared with the expected pattern, previous pattern, or trend*
>
> *16(2)(d) - confirmation that there is no obvious corruption of the data, including unexpected zero values.*

Audit observation

I reviewed and observed the NHH data validation process, including checking a sample of data validations. I reviewed the file manager transactions and validations document, and billing validations document, and viewed the work queues.

Audit commentary

MERI

NHH data is validated by several processes.

Meter reader validation

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

Read import validation

The second level of validation occurs when the data reaches Meridian. I reviewed Meridian's Velocity validation list, and work queues within Velocity.

File manager validations are completed on read import, and check for file format errors, file corruption, read dates outside of expected parameters, and invalid metering information. These errors are sent to a billing team exception queue and the file is normally returned to the meter reading contractor for resolution.

Billing validation

Once imported, billing validations are completed, and exceptions are reviewed by the billing team. These identify:

- meter reads inconsistent with metering information, including a different number of digits or decimals to what is expected,
- a reading with a no read code provided,
- no reading without a no read code provided,
- invalid read type code,
- negative consumption,
- unexpected consumption including daily average consumption exceeding expected limits for the customer price plan, consumption on removed registers, high or low charges, consumption on vacant ICPs, and meter readings provided on an unmetered sequence,
- unexpected read dates including reads before scheduled date, billing cycle too long or too short, and reads after contract expiry, and
- multiple readings on the same day.

Reads for ICPs with a non-billable status (such as disconnected or vacant) are loaded into the Velocity consumption history but are not billed to the customer. They are validated if they are more than 200 kWh as described in **section 6.6**.

Warnings are created where there is no consumption to bill, no reading, the customer is to be finalled, or an out of cycle read is booked.

Zero consumption

Zero consumption is monitored for ARC meters, because there are known problems with controllers. Arc send through lists of ICPs not recording consumption.

Meridian has reporting in place that identifies all sites with zero consumption. As reported in the last audit, further refinement of this report has been developed but has not been implemented. With the move to Flux, any further changes in Gentrack have been halted as all ICPs are expected to move to Flux. The refinements were expected to exclude the large number of ICPs with seasonal or zero consumption including irrigators, holiday homes and earthquake affected sites. Therefore, whilst reporting is in place, full compliance is not considered achieved without the refinements detailed above. This is recorded as non-compliance below. Drops in consumption are detected at the time they occur, through the billing validations.

Vacant ICPs with consumption

All vacant ICPs go through the vacant disconnection process, described in **section 3.9**. Letters are sent to the property, and vacant sites are not disconnected unless Meridian can confirm that electricity consumption is very low or zero.

Inactive ICPs with consumption

Disconnected ICPs with consumption are not identified through the billing validations, ICPs with a disconnected status are not billed.

The revenue assurance generates a daily report of inactive ICPs with consumption. The report shows the date the ICP became inactive and compares the first reading on or after the inactive date to the latest reading received. The revenue assurance team work through the report prioritising the ICPs with the highest consumption while inactive first. Checks are completed to determine whether the consumption is genuine, or relates to meter reading issues, a meter fault, or a reconnection performed by a new gaining retailer.

If the consumption appears to be genuine, the ICP is put through the vacant process and then disconnected. The status is not normally corrected, and the reads are not validated unless a customer signs up and the reads can be recorded against their account.

The reconciliation team also review this report and validate readings where consumption is present, so that the reads will be used by the historic estimate calculations.

Bridged meters

Meridian does not initiate meter bypass instructions to any MEP or contractor. If they request a remote reconnection, the MEP is expected to either conduct this, or will make necessary arrangements for reconnection without bypassing. Where it is necessary to bypass a meter for safety reasons, Meridian's contracts with service providers specify that they must return within one to two business days to unbridge the meter. Corrections for bridged consumption are discussed in **section 2.1**.

Reconciliation submissions

Processes to review reconciliation submission information are discussed in **section 12.2.**

MERX

There are several steps to validation of NHH data.

Meter reader validation

At source, the handheld data input devices perform a localised validation to ensure that the reading is within expected high-low parameters. Readings outside these parameters have to be re-entered and acknowledged by the data collector. A meter cannot be skipped without reading unless a reason is entered.

Read import validation

The second level of validation occurs when the data reaches Meridian. The Flux validation checks the following:

- meter and register number match,
- missing readings,
- invalid dates and times,
- consumption more than 500% of that expected,
- readings lower than the previous reading, and
- transposed reads.

Billing validation

Once imported, billing validations are completed, and exceptions are reviewed by the billing team. These identify:

- long billing period,
- short billing period,
- high consumption, and
- low consumption.

Reporting is in place for zero consumption as it occurs.

Vacant and Disconnected ICPs with consumption and Bridged Meters

The processes for management of vacant ICPs and inactive ICPs with consumption and bridged meters are the same as for MERI but the reporting available in Flux is less sophisticated and therefore the process is more manual.

Reporting is being improved to make the management of exceptions less manual and better able to manage the Meridian customer base which is significantly larger than that previously managed in Flux.

Reconciliation submissions

Processes to review reconciliation submission information are discussed in **section 12.2.**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.5 With: Clause 16 Schedule 15.2 From: 01-Oct-19 To: 07-Jul-20	Zero consumption not monitored for all ICPs. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate as they will mitigate risk most of the time but not in all cases of zero consumption occurring for MERI customers. Reporting is being improved in Flux and this is expected to address the present gap. The impact is low as drops in consumption will be identified most instances.

Actions taken to resolve the issue	Completion date	Remedial action status
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
MERI Existing zero consumption monitoring for high risk metering (i.e. Arc controllers) will continue. We are still investigating development of a refined report to identify invalid zero consumption so these can be addressed prior to ICP migration to Flux. **MERX** Zero consumption monitoring is in place for all ICPs as reported	Dec 2020 Ongoing	

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

Code reference

Clause 17 Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

Audit observation

I reviewed the generation, HHR, and AMI data validation processes, including meter event logs and validation checks.

Audit commentary

MERI

HHR

EMS interrogates meters regularly during the month, so there is little risk that data will be overwritten.

EMS' validates HHR meter readings and refers any issues to Meridian, so that the Meridian account managers can check the consumption with their customers and confirm whether it appears correct.

Billing validations may identify changes in volumes that are outside excepted limit, which are then referred to EMS.

EMS' agent audit found their validation processes were compliant. During the previous audit it was found that EMS was not monitoring phase failure events for one meter type because of a configuration issue for that meter type in EMS' event notification system. This matter is now resolved.

AMI

Meridian demonstrated their validation processes for AMI installations. These ICPs are billed and reconciled as NHH sites so validation is based on end of day reads and not the half hour interval data. Validation checks are the same as for non-AMI meters, and include:

- missing data,
- invalid dates and times,
- zero data, and
- comparison with previous or expected flow patterns.

NHH AMI data is provided by MEPs via SFTP. Meter event information is provided and reviewed as follows:

MEP	Provided by	Meter event information provided and reviewed
ARC	ARC	Arc review their meter events and provide load side voltage events and meter communication issues to Meridian.
AMS	AMS	Full event information is provided via SFTP. Any events that require action by Meridian are advised via email.
Smartco		
IntelliHUB	IntelliHUB	Full event information is provided via SFTP. Any events that require action by Meridian are advised via email.
Intellihub		
Counties Power		
FCLM	FCLM	Full event information is provided via SFTP. The data is reviewed by Meridian and field services jobs are raised to investigate and resolve issues as required.
WEL Networks	WEL Networks	Full event information via SFTP, which is reviewed by Meridian. The data is reviewed by Meridian and field services jobs are raised to investigate and resolve issues as required.

I reviewed examples of meter event information provided by MEPs. A sample of events were checked and found that they had been actioned appropriately.

Generation

Stark interrogation occurs every half hour, so there is little risk that data will be overwritten.

Meridian validates data against Transpower SCADA data, and aggregation meters are compared to the sum of the individual meters. The SCADA data is not derived from the revenue metering, so it provides a sound basis for validation.

I reviewed evidence of validity checks for generation metering data, including:

- checks for missing data - the sum of the Stark data is compared to the Transpower SCADA data to ensure data is not missing and there is also a separate check for missing data each business day,
- checks for invalid dates and times - Stark will only collect data if the date and time of the logger matches that to the system to within five seconds,
- checks of unexpected zero values - sometimes zeros are present and are correct and the comparison with SCADA data ensures unexpected zeros are identified,
- comparison with expected flow patterns - generation data does not have an expected flow pattern, so consumption is graphed against SCADA data to ensure unexpected zeros and anomalies are identified, a comparison is also completed against the capacity for the meter, and
- a review of meter and data logger event list - any event that could have affected the integrity of metering is investigated.

MERX

The checks described in **section 9.5** achieve compliance with points “a” to “d” above. MEPs conduct “sum-check” validation to achieve compliance with point “e”. MERX meter event reporting is provided via the same mechanisms as described for MERI above. I reviewed examples of meter event information

provided by MEPs. A sample of events were checked and found that they had been actioned appropriately.

Audit outcome

Compliant

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

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

Code reference

Clause 13.136

Code related audit information

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

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

Audit observation

Meridian confirmed that no information is required to be provided in accordance with this clause because there are no embedded generators subject to dispatch instructions.

Audit commentary

Meridian confirmed that no information is required to be provided in accordance with this clause because there are no embedded generators subject to dispatch instructions.

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

EMS provides unoffered and intermittent generation metering information as Meridian's agent, and compliance was assessed as part of their audit.

Audit commentary

EMS' agent report confirmed compliance.

Audit outcome

Compliant

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

Code reference

Clause 13.138

Code related audit information

The generator must provide the information required by clauses 13.136 and 13.137,

13.138(1)(a)- adjusted for losses (if any) relative to the grid injection point or, for embedded generators the grid exit point, at which it offered the electricity

13.138(1)(b)- in the manner and form that the pricing manager stipulates

13.138(1)(c)- by 0500 hours on a trading day for each trading period of the previous trading day.

The generator must provide the half-hour metering information required under this clause in accordance with the requirements of Part 15 for the collection of the generator's volume information.

Audit observation

This is conducted by EMS as Meridian's agent. The EMS report confirms compliance.

Audit commentary

This is conducted by EMS as Meridian's agent. The EMS report confirms compliance.

Audit outcome

Compliant

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

This is conducted by EMS as Meridian's agent. The EMS report confirms compliance.

Audit commentary

This is conducted by EMS as Meridian's agent. The EMS report confirms compliance.

Audit outcome

Compliant

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

Audit observation

A registry list for 01/10/19 to 07/07/20 was reviewed for the audit period to confirm the profiles used. Processes to create buying and selling notifications were reviewed.

Audit commentary

Checks that valid trading notifications are in place are part of the reconciliation report validation checks, discussed in **section 12.3**.

No breach allegations were made in relation to trading notifications.

Audit outcome

Compliant

11.2. Calculation of ICP days (Clause 15.6)

Code reference

Clause 15.6

Code related audit information

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

> *15.6(1)(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period*
>
> *15.6(1)(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.*

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

Audit observation

The process for the calculation of ICP days was examined by checking 14 NSPs with a small number of ICPs to confirm the AV110 ICP days calculation was correct.

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

Audit commentary

MERI

The process for the calculation of ICP days was examined by checking ten HHR NSPs and four NHH NSPs with discrepancies between the registry ICP days and Meridian's ICP days.

Breach information provided by the Electricity Authority did not identify any late ICP days submissions.

The following table shows the ICP days difference between Meridian files and the RM return file (GR100) for 10 months. The discrepancies are very small and mostly don't show to two decimal places.

Month	R1	R3	R7	R14
Feb-19				0.00%
Mar-19				0.00%
Apr-19				0.00%
Aug-19			-0.01%	
Sept-19			0.00%	
Oct-19			0.00%	
Dec-19		0.00%		
Jan- 20		0.00%		
Apr-20	-0.01%			
May-20	-0.02%			

I reviewed ICP days differences at NSP level for 14 NSPs and found they were due to backdated switching, status or other registry events with the exception of:

- ICP 0006651984AL7C1 had the incorrect submission flag of NHH from 01/11/19 - 31/12/19 but HHR data was being submitted resulting in HHR ICP days missing from the registry. This was corrected in March 2020, and
- ICP 1001257822LCC15 was incorrectly set up against embedded network TKV0011 for the October and November submissions and was corrected by revision 7 to TAK0331.

Where ICP status is recorded incorrectly, ICP days may be reported incorrectly. ICPs with incorrect statuses or status dates are recorded as non-compliance in **section 3.8**. This is recorded as non-compliance in **section 2.1** and **12.7.**

MERX

The process for the calculation of ICP days was examined by checking eight NHH NSPs with discrepancies between the registry ICP days and MERX's ICP days.

Breach information provided by the Electricity Authority did not identify any late ICP days submissions.

The following table shows the ICP days difference between MERX files and the RM return file (GR100) for eight months. The discrepancies are so small that do not show to two decimal places. Discrepancies were examined for four NSPs and they all related to backdated switching events.

Month	R1	R3	R7	R14
Feb-19				0.00%
Mar-19				0.00%
Apr-19				0.00%
Aug-19			0.00%	
Sept-19			0.00%	
Oct-19			0.00%	
Dec-19		0.00%		
Jan- 20		0.00%		
Apr-20	0.00%			
May-20	0.00%			

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 11.2 With: Clause 15.6 of part 15 From: 01-Feb-19 To: 01-May-20	**MERI** Incorrect ICP days for ICP 1001257822LCC15 submitted against NSP TKV0011 in error. Incorrect ICP days for ICP 0006651984AL7C1 due to the incorrect submission flag on the registry. Where ICP statuses or status dates are recorded incorrectly, incorrect ICP days may be reported. Potential impact: Low Actual impact: None Audit history: Three times previously 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 rated as low because overall the number of ICP days affected is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
The issues for ICP 1001257822LCC15 and ICP 0006651984AL7C1 were a result of human error and were identified and corrected through our internal controls. Actions related to management of status and status dates are recorded in section 3.8.		Complete	Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Actions related to management of status and status dates are recorded in section 3.8.			

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

Code reference

Clause 15.7

Code related audit information

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

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

Audit observation

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

GR130 reports for January 2017 to May 2020 were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

Audit commentary

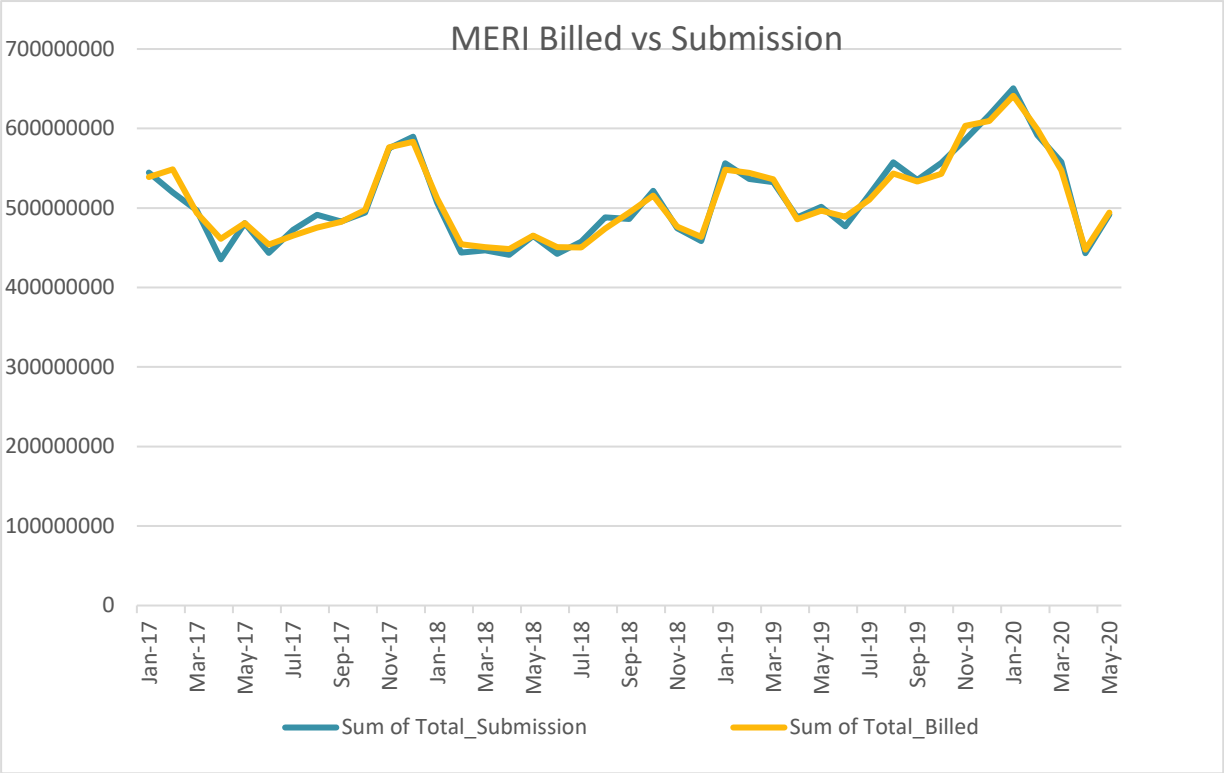
MERI

The process for calculating and submitting electricity supplied information was reviewed.

The process for the calculation of as billed volumes was examined by checking five NSPs with a small number of ICPs against invoice information. The AV120 billed consumption calculation was confirmed to be correct for the NSPs checked. "As billed" submissions for prepay ICPs are based on readings and included in the AV120 based on the read date.

I also checked the difference between submission and electricity supplied information from January 2017 to May 2020. There is a difference of 0.14% (billed higher than submission). I also checked the invoiced totals for five NSPs against the AV120 totals and there was a match.

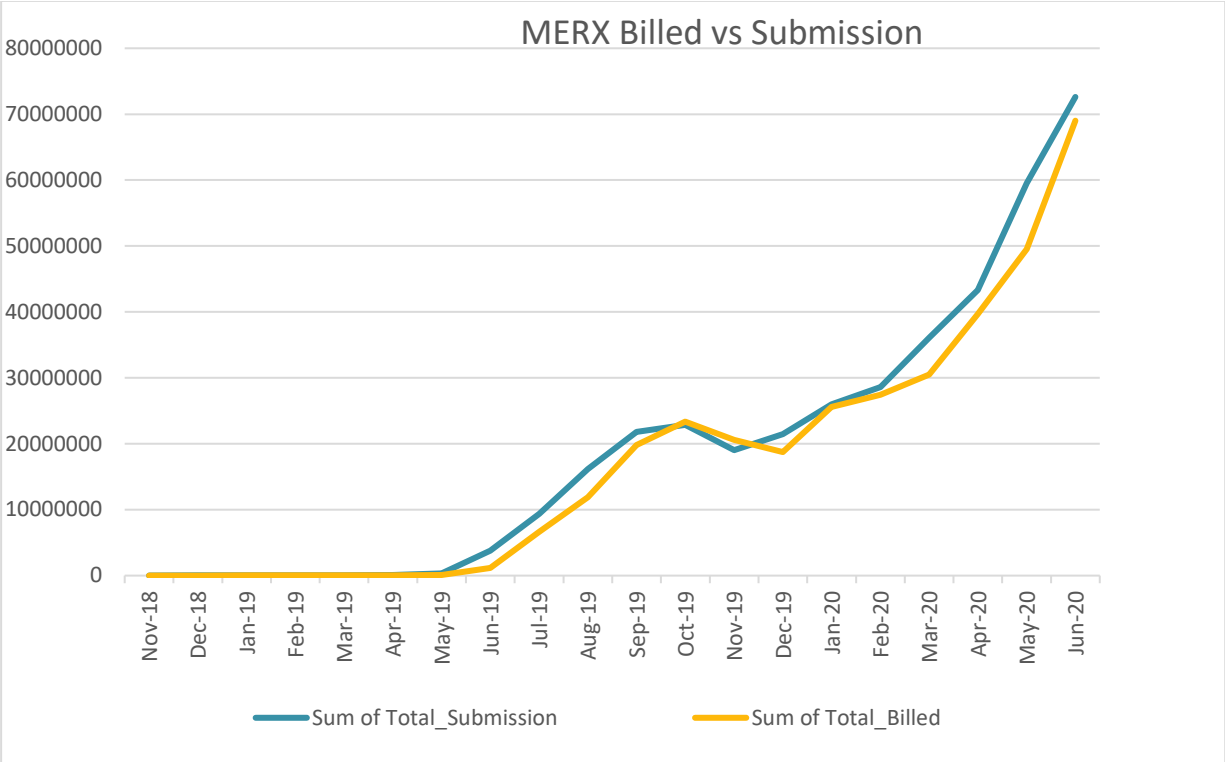
Monthly, Meridian reviews the GR130 results for the previous 16 months to check for reasonableness and identify any anomalies. I saw evidence of these reviews.



MERX

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

I checked the difference between submission and electricity supplied information from January 2017 to May 2020. There is a difference of 10.7% (billed lower than submission), this has reduced from the 69.8% variance reported in the last audit. This was investigated and it appears the difference is due to the continued onboarding of customers from Gentrack (MERI) to Flux (MERX). I confirmed this by checking the billed volumes reported against the internal billed volume reporting and found no differences. The current gap is expected to decrease once the onboarding is complete.



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 commentary

EMS creates HHR aggregates and volumes information, and compliance was assessed as part of their audit.

EMS provides two aggregate reports to the reconciliation manager, a HHRAGGS file containing all X flow rows, and a HHRAGGI file containing all I flow rows. ICPs with generation only do not appear in either of the HHRAGGS files, and the Electricity Authority confirmed this was acceptable during EMS' 2017 audit.

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 10 submissions.

The GR090 ICP Missing files were examined for January 2019 to May 2020. An extreme case sample of ICPs missing from four or more revisions were checked.

Audit commentary

EMS' processes for provision of HHR aggregates information were assessed during their agent audit. Non-compliance was found because the HHR aggregates report contains submission information, not electricity supplied information as specified under clause 15.8. Although the reports EMS' produces are consistent with the Reconciliation Manager Functional Specification, this is recorded as technical non-compliance below.

I checked the process for aggregation of HHR data is correct, by matching HHR aggregates information to the volumes, and found that the difference related to generation only ICPs. Compliance was confirmed.

The GR090 ICP Missing files were examined for all revisions for January 2019 to May 2020. I checked an extreme case sample of 12 ICPs missing for four or more revisions and found they related to:

- generation only ICPs, which are excluded from the aggregates files; the Code does not specifically state whether this information is required or not, the file format has a field for flow direction and the Electricity Authority has confirmed that generation quantities are not required in the file, but these are continuing to be submitted,
- backdated switches and switch withdrawals,
- updates to the trader for new connections,
- backdated updates to submission type, and
- ICP 0000100457UN349 was reported in the ICP missing report as having been submitted against NSP HEN0331 but was expected to be submitted against HEP0331. This was checked with EMS and confirmed that the submission was correctly made and the ICP missing report has reported this incorrectly.

Late switching files and updates to the registry are discussed in **sections 3** and **4**.

Audit outcome

Non-compliant

<table>
<tr><th>Non-compliance</th><th colspan="3">Description</th></tr>
<tr><td>Audit Ref: 11.4
With: Clause 15.8

From: 01-Jan-19
To: 31-May-20</td><td colspan="3">HHR aggregates file does not contain electricity supplied information.
Potential impact: None
Actual impact: None
Audit history: Multiple times previously
Controls: Strong
Breach risk rating: 1</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 issue relating to content of the aggregates file is an error in the code, Meridian is providing submission information as expected.</td></tr>
<tr><th colspan="2">Actions taken to resolve the issue</th><th>Completion date</th><th>Remedial action status</th></tr>
<tr><td colspan="2">Meridian will not be taking any action in relation to this technical non compliance.</td><td></td><td>Investigating</td></tr>
</table>

Preventative actions taken to ensure no further issues will occur	Completion date	

12. SUBMISSION COMPUTATION

12.1. Daylight saving adjustment (Clause 15.36)

Code reference

Clause 15.36

Code related audit information

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

Audit observation

HHR

All HHR data is collected by EMS, and daylight savings adjustments were reviewed as part of their agent audit.

Generation

I checked files for changes to and from daylight saving.

Audit commentary

HHR

Daylight savings adjustments were reviewed as part of EMS' agent audit and found to be compliant. EMS uses the trading period run on technique.

Generation

Stark automatically adjusts for daylight savings, using the trading period run on technique. I checked sample files covering the start and end of daylight savings to ensure daylight savings adjustments were correct.

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

A list of breaches was obtained from the Electricity Authority. There were no breaches for late provision of submission information.

- HHR submissions are created by EMS, and their processes were reviewed as part of their agent audit. Submissions were checked in **section 11.4.**
- MERI NHH submissions are created using Velocity, and MERX submissions are created using Flux. A sample of NHH ICPs were checked to make sure they are handled correctly, including unmetered load, distributed generation, and vacant ICPs with consumption. Further information on calculation of historic estimate is recorded in **section 12.11**.
- NSP volumes submissions are discussed in **section 12.6**.

Audit commentary

HHR

Submission of HHR information was reviewed as part of EMS' agent audit and found to be compliant.

NHH MERI

Meridian prepares NHH submissions using reconciliation consumption generated in Velocity.

I reviewed submissions for a sample of:

- ten ICPs with injection/export registers and confirmed that generation consumption is correctly submitted,
- ten ICPs with vacant consumption and confirmed that vacant consumption was reported for all, and
- ten ICPs with unmetered volumes were reviewed, including standard and shared unmetered; I confirmed that the correct consumption was reported.

NHH metered and unmetered volumes are reviewed prior to submission. I walked through the process to review submissions which included a match against trader notifications and investigation of differences of over 100,000kWh and 15% between revisions. Zeroing occurs automatically as part of the comparison to the trader notification table in Velocity and is discussed further in **section 12.3**.

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

NHH MERX

MERX submission files are created in Flux. I checked submissions for:

- ten ICPs with injection/export registers and confirmed that generation consumption is correctly submitted, and
- ten ICPs with vacant consumption and confirmed that vacant consumption was reported for all.

The pre-submission checks include a comparison between revisions and a check against the previous month. The capability exists to drill down to ICP level if any anomalies are found.

Generation

Meridian submits AV130 generation volumes files. Data for a sample of five NSPs for the first six trading periods of one day was matched from the AV130 submission files to the raw SCADA data; all values matched.

I walked through the process to review submissions and validate generation data in **section 9.6**.

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

Audit outcome

Compliant

12.3. Allocation of submission information (Clause 15.5)

Code reference

Clause 15.5

Code related audit information

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

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

Audit observation

Submission of HHR information was reviewed as part of EMS' agent audit and found to be compliant.

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

The process to ensure that AV080 submissions are accurate was discussed. The process for aggregating the AV080 was examined by checking five NSPs with a small number of ICPs.

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

Audit commentary

HHR

Submission of HHR information was reviewed as part of EMS' agent audit and found to be compliant.

Meridian validates the submissions produced by EMS prior to their submission on business day four and 13. Lavastorm is used to generate reports comparing registry data, aggregates files, volumes files, ICP days files and EIEP3 files (which are outside the scope of this audit). The data is compared, and any anomalies are reported.

I reviewed a sample of these validations and noted that Meridian staff had reviewed anomalies and added comments. Where issues or concerns are identified, these are communicated to EMS for action. If EMS updates any data, it is sent back to Meridian for rechecking using Lavastorm.

NHH MERI

The process for the calculation of NHH volumes was examined by checking five NSPs with a small number of ICPs. NHH volume calculation was confirmed to be correct.

NHH data is validated prior to submission. Fields used for reconciliation submission aggregation are reconciled to the registry prior to the initial and wash up submissions being created. Any ICPs with consumption that is negative or over 100,000 kWh are checked.

Zeroing occurs automatically as part of the comparison to the trader notification table in Velocity. If an open trading notification is present but no submission data has been generated, Velocity automatically inserts a zero line.

GR170 and AV080 files for eight months were compared, and no issues were identified.

As detailed in **section 11.2**, ICP 1001257822LCC15 was incorrectly set up against embedded network TKV0011 for the October and November 2019 submissions and was corrected by revision 7 to TAK0331. This is recorded as non-compliance below.

NHH MERX

The process for the calculation of NHH volumes was examined by checking four NSPs with a small number of ICPs. NHH volume calculation was confirmed to be correct.

The pre-submission checks include a comparison between revisions and a check against the previous month. The capability exists to drill down to ICP level if any anomalies are found. MERX now uses the AC020 reports regularly to identify and resolve discrepancies.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.3 With: Clause 15.5 From: 01-Feb-19 To: 01-Jun-20	One ICP allocated to the incorrect NSP. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls over accuracy of submission information are rated as strong, as there are robust controls in place to validate submission information and identify and correct errors. The audit risk rating is low as only two ICPs were identified with NSP errors and both were identified and eventually corrected through the validation processes in place.

Actions taken to resolve the issue	Completion date	Remedial action status
ICP 1001257822LCC15 - Refer section 11.4 for comments		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
	Oct 2020	

12.4. Grid owner volumes information (Clause 15.9)

Code reference

Clause 15.9

Code related audit information

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

- *submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period (clause 15.9(a))*

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

Audit observation

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

Audit commentary

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

Audit outcome

Not applicable

12.5. Provision of NSP submission information (Clause 15.10)

Code reference

Clause 15.10

Code related audit information

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

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

Audit observation

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

Audit commentary

Meridian is not required to provide NSP submission information.

Audit outcome

Not applicable

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

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

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

Audit observation

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

Data for a sample of five NSPs for the first six trading periods of one day was matched from the AV130 submission files to the raw SCADA data.

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

Audit commentary

Meridian creates AV130 submissions for grid connected generation.

Data for Benmore for all of September 2020 was matched from the AV130 submission files to the raw SCADA data; all values matched.

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

Audit outcome

Compliant

12.7. Accuracy of submission information (Clause 15.12)

Code reference

Clause 15.12

Code related audit information

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

Audit observation

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

Corrections were reviewed in **section 2.1**.

Audit commentary

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

MERI

The following issues which impacted on the accuracy of volume information submitted to the reconciliation manager were identified.

- Forward estimate remained right up until R14 because ICPs had switched out on estimated readings, and these readings were not treated as permanent estimates by the historic estimate calculation.
- I reviewed 12 examples of defective meters. For all 12 examples, corrections had been processed and flowed through to reconciliation submissions. If the correction needs to be "spread", a request is made to the reconciliation team. I found one example where correction made was not spread across the 14-month revision cycle but instead spread from May 19 - November 19. This was because the reconciliation team were not advised to do so. It appears that notification to the reconciliation team as to what period to spread consumption over has improved during the audit period, but errors can still occur.
- I rechecked the two Category 2 ICPs with defective metering recorded in the last audit report and found:

- ICP 0000931760NV71C has a failed current transformer and is recording 18% low. Certification was cancelled on 09/08/18, but the metering has not yet been replaced. This has not been resolved as yet. Meridian is following up with the MEP. This is recorded as non-compliance.
- ICP 0005170923RN2E6 was reported as over recording by 32.39% from 02/03/16 until 12/03/19. The correction was processed for this ICP but did not process as expected, adding consumption rather than removing it. This was identified by Meridian immediately and manual corrections are now being carried out in the R14 revisions to correct both the original and subsequent incorrect adjustments. Therefore, this correction will be completed correctly.

- 11 examples of bridged meters were reviewed. In all cases, the meter was either recertified at the time of the removal of the bridge or the meter was replaced with a new certified meter. Corrections occurred for five ICPs but was missed for six ICPs. The processing of correction is operator driven and the operator missed this step in six instances suggesting that the correct process is not being followed by all operators. This will result in 1,783 kWh of under submission for the sample checked. This is recorded as non-compliance.
- The EMS agent audit found some incorrect shape files being used for the WAIK and COUP NSPs (Waikato DC database) resulting in an estimated over submission of 3,000 kWh. This is recorded as non-compliance.
- ICP 1001257822LCC15 was incorrectly set up against embedded network TKV0011 for the October and November submissions and was corrected by revision 7 to TAK0331.
- Three examples where the ICP was downgraded from HHR to NHH on 12/02/20. The new meters were installed on 11/02/20 but were not installed in Gentrack until 12/02/20 therefore the NHH volume recorded on 11/02/20 will be submitted for 12/02/20.

As discussed in **section 4.11**, one RR file was incorrectly rejected meaning MERI used the incorrect final read. The details are shown below.

ICP	Event date	Correct read	MERX read	Difference (kWh)
0000137970TR94A	01/11/2019	7919 9226	7900 9226	19

MERX

Flux is not compliant for two specific scenarios resulting in HE being incorrectly labelled as FE. One scenario is where meter removal readings are available, but the consumption is labelled as FSE. The other scenario is where shape files are not available. The consumption is correctly calculated but is labelled as FE instead of HE. No specific examples were identified during this audit, but the system functionality still needs to be changed to achieve compliance.

I rechecked the correction for ICP 0005758831RN460 which was found to have a defective meter in the 2019 audit. The consumption been applied to one day. This has now been spread across the month of September 2019, but not across the period the ICP was defective which was from 22/08/19. This is recorded as non-compliance.

As discussed in **sections 4.5 and 4.11**, five RR files were incorrectly rejected meaning MERX used the incorrect final read. The details are shown below.

ICP	Event date	Correct read	MERX read	Difference (kWh)
0000035310HBB4B	14/02/2020	59375	59364	11

0000051622TRD3C	31/12/2019	83605	83601	4
0000222351UNBFD	15/04/2020	17977 61883	17981 61873	4 10
0000244090UN4CC	4/12/2019	64291	64289	2
0006114997RNE4D	29/01/2020	14154 25633	14151 25631	3 2

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.7 With: Clause 15.12 From: 01-May-19 To: 07-Jul-20	Some submission information was inaccurate. Potential impact: Medium Actual impact: Medium Audit history: Twice previously Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls over accuracy of submission information are moderate, as there are controls in place to validate submission information and identify and correct errors. The audit risk rating is assessed to medium as the proportion of the sampled ICPs that did not have bridged meters that had not had corrections processed correctly was more than 50% of the sample checked.

Actions taken to resolve the issue	Completion date	Remedial action status
We have commented on specific issues raised in the relevant sections of this report.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 4 Schedule 15.2

Code related audit information

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

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

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

Audit observation

NHH volumes 14-month revisions were reviewed for December 2018 to April 2019 to identify any forward estimate still existing.

Audit commentary

MERI

Review of the 14-month revisions for January to June 2018 showed that not all estimated meter readings had been replaced with validated meter readings as required by the Electricity Authority. This is recorded as non-compliance below.

Month	Forward estimate
Dec-18	225,489
Jan-19	318,074
Feb-19	272,208
Mar-19	324,929
Apr-19	283,444

I examined six NSPs at ICP level where forward estimate still existed at 14 months. As reported in the last audit, the forward estimate remained because an ICP or ICPs had switched out on estimated readings, and these readings were not treated as permanent estimates by the historic estimate calculation.

In addition to this as discussed in **section 6.6**, forward estimate continues to be calculated until validated reads are entered.

MERX

Flux does not have the capability to deal with "permanent estimates". There was no forward estimate still existing in the three R14 revisions submitted. Compliance is confirmed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 4 of Schedule 15.2 From: 01-Dec-18 To: 19-Apr-31	**MERI** Some estimates not replaced at R14. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate as they are sufficient to ensure estimates are replaced by revision 14 most of the time, but there is room for improvement. The audit risk rating is assessed as low as the total forward estimate quantity for the 5-month period evaluated was just under 1.4GWh, which is much lower than reported in the last audit report.

Actions taken to resolve the issue	Completion date	Remedial action status
The issue regarding switch estimates not being treated as permanent will be resolved when all ICPs are transitioned to Flux.	Sept 2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Flux capability to treat estimates as permanent where long term unread ICPs exist remains a gap that will be assessed for a solution in due course.	Sept 2021	

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

Code reference

Clause 2 Schedule 15.3

Code related audit information

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

- *half hour volume information for the total metered quantity of electricity for each ICP notified in accordance with clause 11.7(2) for which there is a category 3 or higher metering installation (clause 2(1)(a))for each ICP about which information is provided under clause 11.7(2) for which there is a category 1 or category 2 metering installation (clause 2(1)(b)):*
  - *a) any half hour volume information for the ICP; or*
  - *b) any non half hour volumes information calculated under clauses 4 to 6 (as applicable).*
  - *c) unmetered load quantities for each ICP that has unmetered load associated with it derived from the quantity recorded in the registry against the relevant ICP and the number of days in*

the period, the distributed unmetered load database, or other sources of relevant information. (clause 2(1)(c))

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

Audit observation

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

Aggregation and content of reconciliation submissions was reviewed, and the registry list as at 07/07/20 was reviewed.

Audit commentary

MERI

Compliance with this clause was assessed.

- HHR submission preparation was reviewed as part of EMS' agent audit and found to be compliant. HHR volume is reported for all ICPs with a meter category 3 or higher.
- Unmetered load submissions were checked in **section 12.2** and found to be correct.
- Certification of control devices was reviewed in **section 6.3**. Controls were strong, but a small number of non-compliances were identified.
- Loss and compensation arrangements were reviewed in **section 8.3** and found to be compliant.
- Aggregation of the AV080 and AV110 submissions are covered in **sections 13.2** and **11.2** respectively.

MERX

- Aggregation of the AV080 and AV110 submissions are covered in **sections 13.2** and **11.2** respectively.
- Compensation factors are correctly applied.
- Flux does not include consumption information from inactive ICPs in submission files. The status needs to be changed to "active" to enable submission to occur. There were two examples of consumption on inactive ICPs detailed in **section 3.8**.

Audit outcome

Compliant

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

Code reference

Clause 3 Schedule 15.3

Code related audit information

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

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

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

Audit observation

Review of nine AV080 submissions 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

MERI

Most labelling is correct, except for the scenario where an ICP switches out on an estimate. This estimate should be considered a permanent estimate and the consumption should be HE, but it is considered FE and is labelled as FE.

MERX

Flux is not compliant for two specific scenarios resulting in the HE being incorrectly labelled as FE. One scenario is where meter removal readings are available, but the consumption is labelled as FSE. The other scenario is where shape files are not available. The consumption is correctly calculated but is labelled as FE instead of HE.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.10 With: Clause 3 of schedule 15.3 From: 01-Oct-19 To: 07-Jul-20	Incorrect labelling of HE as FE. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. There is no impact on settlement, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The issue regarding switch estimates not being treated as permanent will be resolved when all ICPs are transitioned to Flux.	Sept 2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We understand the labelling of calculated volumes as FE rather than HE has no impact on submitted volumes or the market. The issue is identified and will be investigated and assessed for a solution in due course.	Unknown	

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

Code reference

Clause 4 and 5 Schedule 15.3

Code related audit information

The methodology outlined in clause 4 of Schedule 15.3 must be used when preparing historic estimates of volume information for each ICP when the relevant seasonal adjustment shape is available.

If a seasonal adjustment shape is not available, the methodology for preparing an historical estimate of volume information for each ICP must be the same as in clause 4, except that the relevant quantities kWh_{Px} must be prorated as determined by the reconciliation participant using its own methodology or on a flat shape basis using the relevant number of days that are within the consumption period and within the period covered by kWh_{Px}.

Audit observation

To assist with determining compliance of the Historical Estimate (HE) processes, Meridian were supplied with a list of scenarios, and for some individual ICPs a manual HE calculation was conducted and compared to the result from Velocity for MERI and Flux for MERX.

Audit commentary

MERI

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

For scenarios B and C, where an ICP is inactive for part of a month, disconnection and reconnection reads are not entered. The SASV applied for the read period exclude the days during the read period where the ICP was inactive. The exclusion of the SASV for the inactive days ensures that all consumption is reported against active dates

The process for managing shape files was examined. SASV are downloaded from the reconciliation manager portal along with the other reconciliation reports. Following download, they are imported manually into Velocity using the interface file manager.

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

Test	Scenario	Test expectation	Result
m	ICP with a customer read during the month	Customer reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Compliant
n	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Compliant
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly	Compliant

The HE calculations were correct in all scenarios checked, but the non-validation of reads is resulting in volume not being submitted or misallocated. The treatment of estimated switch reads when calculating historic estimate is recorded as non-compliance in **sections 12.7** and **12.8.** The validation of customer and photo reads is recorded as non-compliance in **sections 6.6** and **9.1**.

MERX

MERX provided examples of historic estimate calculations, which were reviewed. Compliance is recorded in this section because where the scenarios had occurred, I found that historic estimate calculations were correct, and the correct SASV (seasonal adjusted shape values) were applied.

SASV are retrieved from the RM portal and loaded into Flux using an automated process. Flux monitors these automated upload processes and notifies MERX if they fail to run

Test	Scenario	Test expectation	Result
a	ICP becomes Active part way through a month	Consumption is only calculated for the Active portion of the month.	Compliant
b	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
c	ICP become Inactive then Active again within a month.	Consumption is only calculated for the Active portion of the month.	Has not occurred
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.	Has not occurred
g	Continuous ICP with a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant

Test	Scenario	Test expectation	Result
h	Continuous ICP without a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
i	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant
j	Unmetered load for a full month	Consumption is calculating based on daily unmetered kWh for full month.	Compliant
k	Unmetered load for a part month	Consumption is calculating based on daily unmetered kWh for active days of the month.	Compliant
l	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Compliant
m	ICP with a customer read during the month	Customer reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Compliant
n	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Has not occurred
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly	Compliant

Audit outcome

Compliant

12.12. Forward estimate process (Clause 6 Schedule 15.3)

Code reference

Clause 6 Schedule 15.3

Code related audit information

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

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

Audit observation

The process to create forward estimates was reviewed.

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

Audit commentary

MERI

Meridian's forward estimate methodology is sound and is based on historic consumption where it is available. If historic consumption is not available, forward estimate of zero is entered. Meridian staff can override the zero estimate by entering a default value if necessary.

The accuracy of the initial submission, in comparison to each subsequent revision is required to be within 15% and within 100,000kWh. The table below shows the number of balancing areas where this target was not met.

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

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
Dec-2018	3	1	0	0	267
Jan 2019	2	8	9	8	271
Feb 2019	2	7	7	6	272
Mar 2019	2	1	2	2	275
Apr 2019	2	3	3	3	278
Jul-2019	3	3	3	-	283
Aug-2019	0	0	0	-	282
Sep-2019	2	2	2	-	283
Oct-2019	0	2	3	-	287
Nov-2019	4	6	6	-	287
Dec 2019	5	5	-	-	288
Jan-2020	6	8	-	-	290
Feb-2020	1	4	-	-	293
Mar-2020	1	3	-	-	294

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Dec-2018	-2.86%	-2.00%	-1.56%	-1.68%
Jan 2019	-1.46%	-8.53%	-8.26%	-1.46%
Feb 2019	-0.73%	0.11%	-0.47%	-0.47%
Mar 2019	2.24%	1.07%	1.28%	1.15%
Apr 2019	-5.11%	-5.12%	-4.94%	-5.02%
Jul-2019	0.19%	-0.02%	-0.28%	-
Aug-2019	-3.01%	-4.68%	-4.94%	-
Sep-2019	-1.12%	-2.91%	-3.16%	-
Oct-2019	-1.37%	-3.54%	-3.97%	-
Nov-2019	0.26%	-6.52%	-6.10%	-
Dec 2019	1.23%	-0.56%		-
Jan-2020	6.15%	-3.32%	-	-
Feb-2020	-0.76%	-1.55%	-	-
Mar-2020	-0.65%	2.62%	-	-

I reviewed 15 balancing area differences where the variation between revisions was more than ± 15% and ± 100,000 kWh. All but one were due to irrigation loads starting and estimates were based on the previous month when irrigation was not running. BSC0011AMPCE was due to the shape file not being provided by the reconciliation manager for revision 3. This was corrected in revision 7.

MERX

Flux's forward estimate process is based on a "straight line" forward standard estimate methodology, and where no historical information is available a "forward default' estimate of 25 units per day is used.

The forward standard methodology is based on the following:

- daily consumption from the "admin" field (based on previous validated meter readings),
- daily consumption from the switch in CS file, or
- daily consumption from the customer at the time of registration.

The accuracy of the initial submission, in comparison to each subsequent revision is required to be within 15% and within 100,000kWh. The table below shows the number of balancing areas where this target was not met.

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

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
Jan 2019	0	0	0	0	2
Feb 2019	0	0	0	0	2
Mar 2019	0	0	0	0	4
May 2019	0	0	0	-	10
Jun-2019	0	0	0	-	10
Jul-2019	0	0	0	-	20
Aug-2019	0	0	0	-	26
Jan-2020	0	0	-	-	64
Feb-2020	0	0	-	-	68
Mar-2020	0	0	-	-	67

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Jan 2019	0.43%	0.55%	0.55%	0.55%
Feb 2019	0.00%	0.00%	0.50%	0.50%
Mar 2019	-0.04%	-0.04%	0.49%	0.49%
May 2019	-0.35%	-0.17%	-0.17%	-
Jun-2019	-0.42%	-0.43%	-0.81%	-
Jul-2019	-0.05%	-0.01%	-0.02%	-

Month	Revision 1	Revision 3	Revision 7	Revision 14
Aug-2019	0.03%	0.07%	0.08%	-
Jan-2020	0.07%	-0.13%	-	-
Feb-2020	0.02%	-0.22%	-	-
Mar-2020	-0.02%	-0.12%	-	-

No balancing areas had a difference greater than 15% and 100,000 kWh.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.12 With: Clause 6 of Schedule 15.3 From: 01-Oct-19 To:07-Jul-20	**MERI** The accuracy threshold was not met for all months and revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to ensure data is within the accuracy threshold most of the time. Initial data is replaced with revised data and washed up.

Actions taken to resolve the issue	Completion date	Remedial action status
		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will continue with our current controls in this area.	Ongoing	

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

Code reference

Clause 7 Schedule 15.3

Code related audit information

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

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

Audit observation

The event detail report for 01/10/19 to 07/07/20 was examined to identify ICPs which had a profile change during the report period.

A diverse sample of 10 ICPs with profile changes were reviewed, including upgrades and downgrades, generation profiles, and non-standard profiles, to confirm that there was an actual or permanent estimate reading on the day of the profile change.

Audit commentary

MERI

In the event of a profile change, Meridian uses a validated meter reading on the day that the change is effective. Profile changes normally have an associated meter change and these readings are used.

A sample of 10 profile changes were checked and found an actual read was gained on the day of the profile change.

MERX

I checked ten examples of profile changes and they all occurred on a meter change with a reading.

Audit outcome

Compliant

13. SUBMISSION FORMAT AND TIMING

13.1. Provision of submission information to the RM (Clause 8 Schedule 15.3)

Code reference

Clause 8 Schedule 15.3

Code related audit information

For each category 3 of higher metering installation, a reconciliation participant must provide half hour submission information to the reconciliation manager.

For each category 1 or category 2 metering installation, a reconciliation participant must provide to the reconciliation manager:

- *Half hour submission information; or*
- *Non half hour submission information; or*
- *A combination of half hour submission information and non half hour submission information*

However, a reconciliation participant may instead use a profile if:

- *The reconciliation participant is using a profile approved in accordance with clause Schedule 15.5; and*
- *The approved profile allows the reconciliation participant to provide half hour submission information from a non half hour metering installation; and*
- *The reconciliation participant provides submission information that complies with the requirements set out in the approved profile.*

Half hour submission information provided to the reconciliation manager must be aggregated to the following levels:

- *NSP code*
- *reconciliation type*
- *profile*
- *loss category code*
- *flow direction*
- *dedicated NSP*
- *trading period*

The non half hour submission information that a reconciliation participant submits must be aggregated to the following levels:

- *NSP code*
- *reconciliation type*
- *profile*
- *loss category code*
- *flow direction*
- *dedicated NSP*
- *consumption period or day*

Audit observation

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

Aggregation of NHH volumes is discussed in **section 12.3**, aggregation of HHR volumes is discussed in **section 11.4** and NSP volumes are discussed in **section 12.6**.

Audit commentary

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

- NSP code,
- reconciliation type,
- profile,
- loss category code,
- flow direction,
- dedicated NSP, and
- consumption period.

The submitted data was also compared to billed data in **section 11.3** and appeared reasonable.

Audit outcome

Compliant

13.2. Reporting resolution (Clause 9 Schedule 15.3)

Code reference

Clause 9 Schedule 15.3

Code related audit information

When reporting submission information, the number of decimal places must be rounded to not more than 2 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 AV090, AV140 and AV080 reports as part of the aggregation checks. AV130 submissions were reviewed in **section 12.6**.

Audit commentary

Submission information is appropriately rounded to no more than two decimal places.

Audit outcome

Compliant

13.3. Historical estimate reporting to RM (Clause 10 Schedule 15.3)

Code reference

Clause 10 Schedule 15.3

Code related audit information

By 1600 hours on the 13th business day of each reconciliation period the reconciliation participant must report to the reconciliation manager the proportion of historical estimates per NSP contained within its non half hour submission information.

The proportion of submission information per NSP that is comprised of historical estimates must (unless exceptional circumstances exist) be:

- *at least 80% for revised data provided at the month 3 revision (clause 10(3)(a))*
- *at least 90% for revised data provided at the month 7 revision (clause 10(3)(b))*
- *100% for revised data provided at the month 14 revision. (clause 10(3)(c))*

Audit observation

The timeliness of submissions of historic estimate was reviewed in **section 12.2**.

I reviewed nine months of GR170 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, and the table below shows that compliance has not been achieved in all instances. This proportion of HE at an aggregate level, as shown in the "proportion of HE at an aggregate level" table is high.

MERI

Quantity of NSPs where revision targets were met

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Jan 2019	-	-	231	362
Feb 2019	-	-	237	365
Mar 2019	-	-	185	369
Aug-2019	-	359	-	373
Sep-2019	-	361	-	374
Oct-2019	-	357	-	378
Jan-2020	360	-	-	383
Feb-2020	329	-	-	384

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Mar-2020	323	-	-	383

The table below shows that the percentage HE at a summary level for all NSPs is well above the required targets for the 3 and 7-month revisions, and below the target for the 14-month revisions.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Jan 2019	-	-	99.90%
Feb 2019	-	-	99.91%
Mar 2019	-	-	99.98%
Aug-2019	-	99.09%	-
Sep-2019	-	99.00%	-
Oct-2019	-	98.89%	-
Jan-2020	96.57%	-	-
Feb-2020	94.76%	-	-
Mar-2020	93.77%	-	-

As detailed in **sections 6.6, 12.7** & **12.8**, HE targets are not being achieved due to FE not being replaced for ICPs that have switched out on estimated readings, and these readings were not treated as permanent estimates and disconnection reads that are not always being validated in Velocity resulting in forward estimates being used when an actual read is available.

MERX

The proportion of HE in the revision files was checked for nine separate months, and the table below shows that compliance has been achieved in all but the revision three instances. This proportion of HE at an aggregate level, as shown in the "proportion of HE at an aggregate level" table is high.

Quantity of NSPs where revision targets were met

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Jan 2019	-	-	12	12
Feb 2019	-	-	12	12

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Mar 2019	-	-	19	19
Aug-2019	-	69	-	69
Sep-2019	-	68	-	68
Oct-2019	-	87	-	87
Jan-2020	154	-	-	156
Feb-2020	155	-	-	158
Mar-2020	155	-	-	158

The table below shows that the percentage HE at a summary level for all NSPs is well above the required targets for the 3 and 7-month revisions and meets the target for the 14-month revisions.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Jan 2019	-	-	100%
Feb 2019	-	-	100%
Mar 2019	-	-	100%
Aug-2019	-	100%	-
Sep-2019	-	100%	-
Oct-2019	-	100%	-
Jan-2020	99.64%	-	-
Feb-2020	98.60%	-	-
Mar-2020	98.47%		

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 13.3 With: Clause 10 of Schedule 15.3 From: 01-Jan-19 To: 01-Mar-20	**MERI** Historic estimate thresholds were not met for some revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk of not meeting the threshold most of the time, but there is room for improvement. The audit risk rating is low, as Meridian were reasonably close to the target in all cases.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer to comments in 12.8 and 12.10		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer to comments in 12.8 and 12.10		

CONCLUSION

Meridian implemented a new system (Flux) prior to the previous audit and continues to transfer NHH ICPs from Velocity to Flux.

The MERX trader code is applied for ICPs managed in Flux, and the MERI trader code is applied for all other Meridian ICPs. Unless otherwise specified, the processes and non-compliances described in the report apply to all codes.

Improvements have been made to Flux during the audit period, which has improved switching compliance, specifically the accuracy of switch event meter readings. Improvements are still required to some of the manual processes, such as the incorrect rejection of RR files. Improvements are also required to ensure the correct labelling of readings as estimates or actuals.

Most submission related corrections occurred as expected, but there are some process improvements required to ensure all corrections for bridged meters are processed.

Meridian continues to make improvements to distributed unmetered load databases and processes, however there are still many inaccuracies leading to incorrect submission.

Distributed generation information and processes require improvement. There are a large number of discrepancies leading to generation kWh not being quantified.

This audit of Meridian's systems and processes found 39 (42 last time) non-compliances and makes three (four last time) recommendations. No issues are raised. The future risk rating is 83, which is a minor improvement on 88 recorded in the last audit.

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 in the executive summary provides some guidance on this matter and contains a future risk rating score of 83 which results in an indicative audit frequency of three months. I have considered this result in conjunction with Meridian's responses and my recommendation the next audit date is 12 months to reflect the improvements made and that further improvements are in progress.

PARTICIPANT RESPONSE

We thank the auditors, Veritek, and our teams for their flexible approach to this audit that was conducted remotely due to COVID-19 travel restrictions in place at the time.

Improvements throughout this audit period include operationalising a process around monthly review of the AC-020 compliance report for MERI and MERX and resolving the issue identified last audit in Flux with reads and read labelling in switching CS files caused by the rolling forward of timestamps for reads from some MEPs.

Development currently in progress in Flux to support reconciliation participant activities includes;

- Automated “no read” process and workflow
- Automation of field service job completion which is expected to improve timeliness of Registry status updates

Issues identified from this audit that will be raised for the Flux development backlog for resolution include;

- Incorrect read types included in RR files
- Truncation of decimals for reads from some MEPs
- Labelling of volumes as FE not HE

In addition, further process improvements and controls have been identified in relation to;

- Management of RR files – staff refresher training re Code obligations for acceptance of RR
- Management defective and bridged meters and correction of historic consumption – process review and monitoring
- Meter read attainment – resource focus on resolution of long terms unread ICPs, particularly account managed councils, which are a constraint for ICP migration to Flux
- Distributed Generation – Reporting and process to manage meter installs for DG on an ongoing basis

Throughout this audit period we have continued the migration of ICPs from Velocity to the Flux platform and as at the beginning of October had completed migration of 104,800 ICPs. We expect migration of remaining ICPs to continue until at least the end of 2021 and will be operating across two platforms until migration is complete.

We acknowledge there are a number of long standing compliance issues related to our Velocity system that are unresolved however with this system in the process of being replaced and business resource being applied to support the migration of our customers to Flux, further investment in Velocity is not considered viable.

Of the 39 non-compliances raised in this audit report, we note that 36 (92%) are recorded as LOW risk (i.e. may have a minor impact if not addressed within 12–24 months).

Bearing this and the improvements made, in progress and identified following this audit in mind, we ask the Authority to consider an audit period of at least 12-14 months to allow a substantial proportion of remaining ICPs to be migrated off the Velocity platform prior to the next audit taking place.