# ELECTRICITY INDUSTRY PARTICIPATION CODE
# RECONCILIATION PARTICIPANT AUDIT REPORT

VERITEK

For

# MERIDIAN ENERGY LIMITED

Prepared by: Rebecca Elliot and Tara Gannon

Date audit commenced: 19 September 2017

Date audit report completed: 14 December 2017

Audit report due date: 18-Dec-17

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## 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.

This audit of Meridian's systems and processes found 29 non-compliance issues, makes three recommendations and two issues are raised.

Meridian continue to make good progress in improving their level of compliance. In relation to registry and switching management it is particularly noticeable in relation to the management of ANZSIC codes, MEP changes and status changes to existing ICPs. The areas that require specific attention to further improve the level of compliance in this area are:

- management of new connections
- management of switching in relation to ensuring the CS file content is correct
- some standard unmetered load information is incorrect
- improvements are required with the management of AMI event information.

Submission related processes are generally operating well with an experienced team overseeing this area. As recorded in the last audit, some consumption information based on forward estimates is still existing at 14 months. This is mainly due to long term unread ICPs and some final estimates not being labelled as permanent estimates, therefore the consumption information is still labelled as FE instead of HE. Two other areas that require specific attention to improve the level of compliance are:

- the management of AMI meter events
- ICP day discrepancies occurring for changes from HHR to NHH downgrades and NHH to HHR upgrades.

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 60, which just pushes it into 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.

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 | Some errors found in registry data and ICP days discrepancies. | Moderate | Low | 2 | Identified |
| Metering certification | 2.10 | 10.33(2) | 2 ICPs certified later than 5 days after energization. | Strong | Low | 1 | Identified |
| Changes to registry information | 3.3 | 10 Schedule 11.1 | Registry information not updated within 5 business days of the event. | Moderate | Low | 2 | Investigating |
| Provision of information to the registry | 3.5 | 9 Schedule 11.1 | Registry information not updated within 5 business days of the event. | Moderate | Low | 2 | Investigating |
| ANZSIC codes | 3.6 | 9 (1(k) Schedule 11.1 | Incorrect ANZSIC code recorded for 2 ICPs. | Strong | Low | 1 | Identified |
| Changes to unmetered load | 3.7 | 9 (1)(f) Schedule 11.1 | Some incorrect unmetered loads populated incorrectly to the registry. | Moderate | Low | 2 | Identified |
| Management of “active” status | 3.8 | 17 Schedule 11.1 | Three ICPs taken to active for the incorrect date. | Moderate | Low | 2 | Identified |
| Management of “inactive” status | 3.9 | 19 Schedule 11.1 | One ICP at the incorrect status. | Strong | Low | 1 | Identified |
| Switching | 4.3 | 5 Schedule 11.3 | CS file content incorrect. | Weak | Medium | 6 | Identified |
| | 4.10 | 11 Schedule 11.3 | CS file content incorrect. | Weak | Low | 3 | Identified |
| | 4.11 | 12 Schedule 11.3 | Customer photo reads accepted as actual reads for switching purposes. | Strong | Low | 1 | Identified |
| | 4.17 | 11.15AA to 11.15AB | Two switch save protected ICPs saved prior to the switch completing. | Moderate | Low | 2 | Identified |
| Unmetered threshold exceeded | 5.3 | 10.14 (5) | Seven ICP with annual consumption over 6,000 kWh. | Strong | Low | 1 | Identified |

| Subject | Section | Clause | Non Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|---|---|---|---|---|---|---|---|
| Distributed unmetered load | 5.4 | 11 Schedule 15.3, Clause 15.37B | Distributed unmetered databases not accurate. | Moderate | High | 6 | Identified |
| Electricity conveyed & notification by embedded generators | 6.1 | 10.13 | While meters were bridged, energy was not metered and quantified according to the code for four ICPs. | Strong | Low | 1 | Identified |
| Certification of control devices | 6.3 | 33 Schedule 10.7 and clause 2(2) Schedule 15.3 | Three ICPs had a profile requiring control device certification without a certified control device or an AMI meter installed. | Strong | Low | 1 | Identified |
| Derivation of meter readings | 6.6 | 5 Schedule 15.2 | Datacol does not identify and report phase failure to Meridian | Strong | Low | 1 | Cleared |
| Interrogate meters once | 6.8 | 7(1) and (2) Schedule 15.2 | Some ICPs were not read during the period of supply. | Strong | Low | 1 | Identified |
| NHH meters 90% read rate | 6.10 | 9(1) and (2) Schedule 15.2 | For one ICP with no actual read in the previous 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met. | Strong | Low | 1 | Identified |
| Correction of NHH meter readings | 8.1 | 15.2(2) and 15.12 of part 15, 19(1) of Schedule 15.2, 2(1)(b) of schedule 15.3 and 15.2(2) of part 15 | Two NHH corrections were not processed:<br>• a defective meter on ICP 000511127NRD5B<br>• an incorrect multiplier on 3407005500CHD0F. | Moderate | Low | 2 | Identified |
| Identification of readings | 9.1 | 3(3) Schedule 15.2 | Two actual readings were labelled as estimates on 14/09/2017 for ICP | Strong | Low | 1 | Investigating |

| Subject | Section | Clause | Non Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|---|---|---|---|---|---|---|---|
| | | | 0001750534TGF88. One actual reading was not entered. | | | | |
| NHH metering information data validation | 9.5 | 16 Schedule 15.2 | Zero consumption not monitored for all ICPs. | Moderate | Low | 2 | Identified |
| Electronic meter readings and estimated readings | 9.6 | 17 Schedule 15.2 | AMI event information not adequately obtained and monitored. No AMI event information is received from Arc. | Weak | Low | 3 | Investigating |
| Calculation of ICP days | 11.2 | 15.6 | Four changes from HHR to NHH, and one change from NHH to HHR had incorrect meter installation dates recorded in Velocity, resulting in one ICP day being omitted per ICP.<br>One meter installed for one day was not recorded in Velocity, which resulted in one ICP day not being reported. | Weak | Low | 3 | Investigating |
| HHR aggregates information provision to the reconciliation manager | 11.4 | 15.8 | HHR aggregates file does not contain electricity supplied information.<br>One meter installed for one day was not recorded in Velocity, which resulted in one day of consumption not being reported. | Moderate | Low | 2 | Investigating |
| Permanence of meter readings for reconciliation | 12.8 | 4 of Schedule 15.2 | Some estimates not replaced at R14. | Moderate | Medium | 4 | Identified |
| Forward estimate process | 12.12 | 6 of Schedule 15.3 | The accuracy threshold was not met for all months and revisions. | Moderate | Low | 2 | Identified |
| Compulsory meter reading after profile change | 12.13 | 7 Schedule 15.3 | Reads or permanent estimates were not applied to the profile change date for four ICPs downgraded from HHR to NHH, and two meters upgraded from NHH to HHR. | Moderate | Low | 2 | Investigating |

| Subject | Section | Clause | Non Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|---|---|---|---|---|---|---|---|
| Historical estimate reporting to RM | 13.4 | 10 of Schedule 15.3 | Historic estimate thresholds were not met for some revisions. | Moderate | Low | 2 | Identified |

| | |
|---|---|
| Future Risk Rating | 60 |
| Next indicative audit frequency | 3 months |

## RECOMMENDATIONS

| Subject | Section | Recommendation | Description |
|---|---|---|---|
| Energisation of an ICPs | 3.5 | Identify any ICPs that are at "inactive-new connection in progress" status that have an initial energisation date populated. | Identified |
| | | Update HHR ICPs to active as soon as all details are known to Meridian. | Identified |
| Changes to unmetered load | 3.7 | Confirm the unmetered load for the 86 ICPs where the Distributor has indicated an unmetered load and Meridian has none and confirm the unmetered load for any ICPs where the load difference is greater than 1 kWh and the load descriptions are different. | Identified |

## ISSUES

| Subject | Section | Clause | Description |
|---|---|---|---|
| Buying and selling notifications | 11.1 | 15.3 | Traders are unable to enter profile codes when creating buying and selling notifications on the electricity reconciliation portal, making it difficult to comply with the requirements of clause 15.3. |
| Historical estimate process | 12.11 | 4 of schedule 15.3 | The code method to calculate historic estimate does not adequately account for situations where the trader does not enter disconnection or reconnection reads, resulting in an ICP with inactive status for part of a read period. |

| | | | |
|---|---|---|---|
| | | | In these cases, if the code method to calculate historic estimate was applied, some of the read period consumption would be apportioned to the inactive days, and not reported. |

# 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

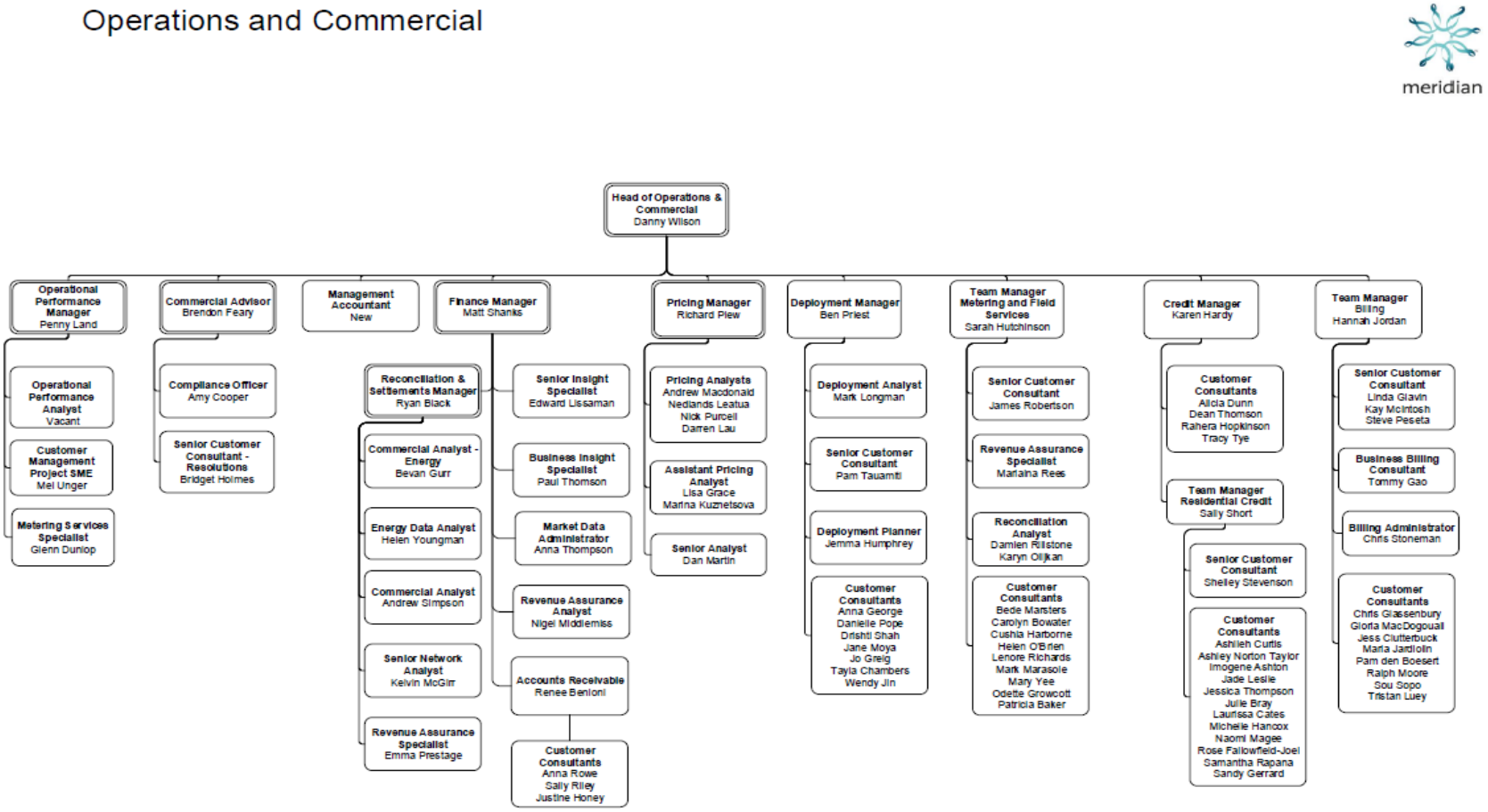
Exemption 245 allows Meridian to use subtraction to determine submission information for ICP 0009805800AL991. The exemption is in place from 23 December 2016 until the earlier of

- 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

Meridian provided their current organisation structure:



## 1.3. Persons involved in this audit

Auditors:

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

Meridian personnel assisting with this audit:

| Name | Title |
|---|---|
| Amy Cooper | Compliance Officer |
| Bevan Gurr | Energy Data Analyst |
| Carolyn Bowater | Customer Consultant |
| Damien Rillstone | Revenue Assurance Specialist |
| Edward Lissam | Senior Retail Insight Specialist |
| Hannah Jordan | Billing and Data Manager, Retail |
| Mary Yee | Customer Consultant |
| Helen Youngman | Energy Data Analyst |
| Kay McIntosh | Senior Customer Consultant, Projects |
| Mark Mirasole | Senior Customer Consultant, Metering & Switching |
| Pat Baker | Customer Consultant |
| Phil Edmonds | Electrical Engineer, Markets and Production |
| Sarah Hutchison | Metering and Switching Manager |

## 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 contractors fulfillment of the participants Code obligations*
- *cannot assert that it is not responsible or liable for the obligation due to something the agent has or has not done.*

### Audit observation

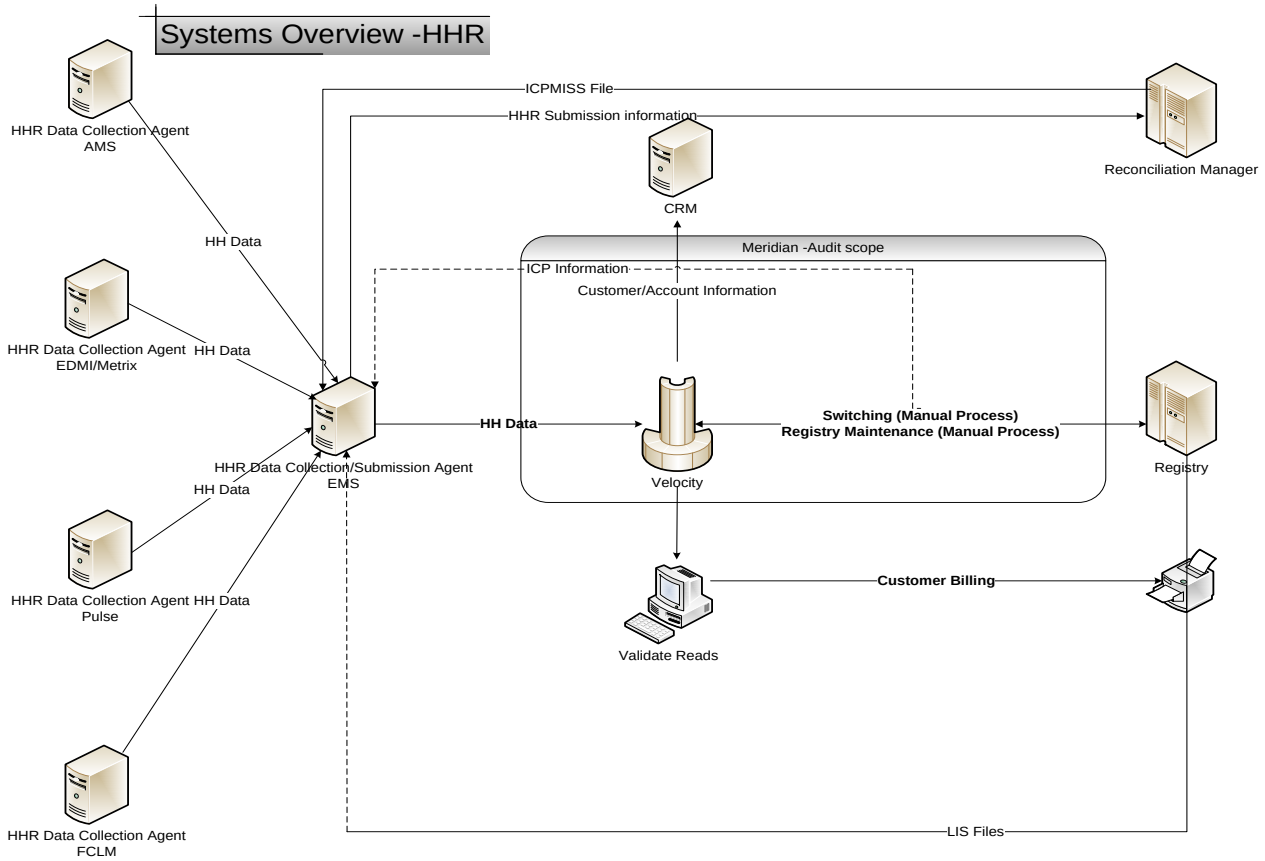
The agents used by Meridian were identified and their agent reports assessed as a part of this audit.

### Audit commentary

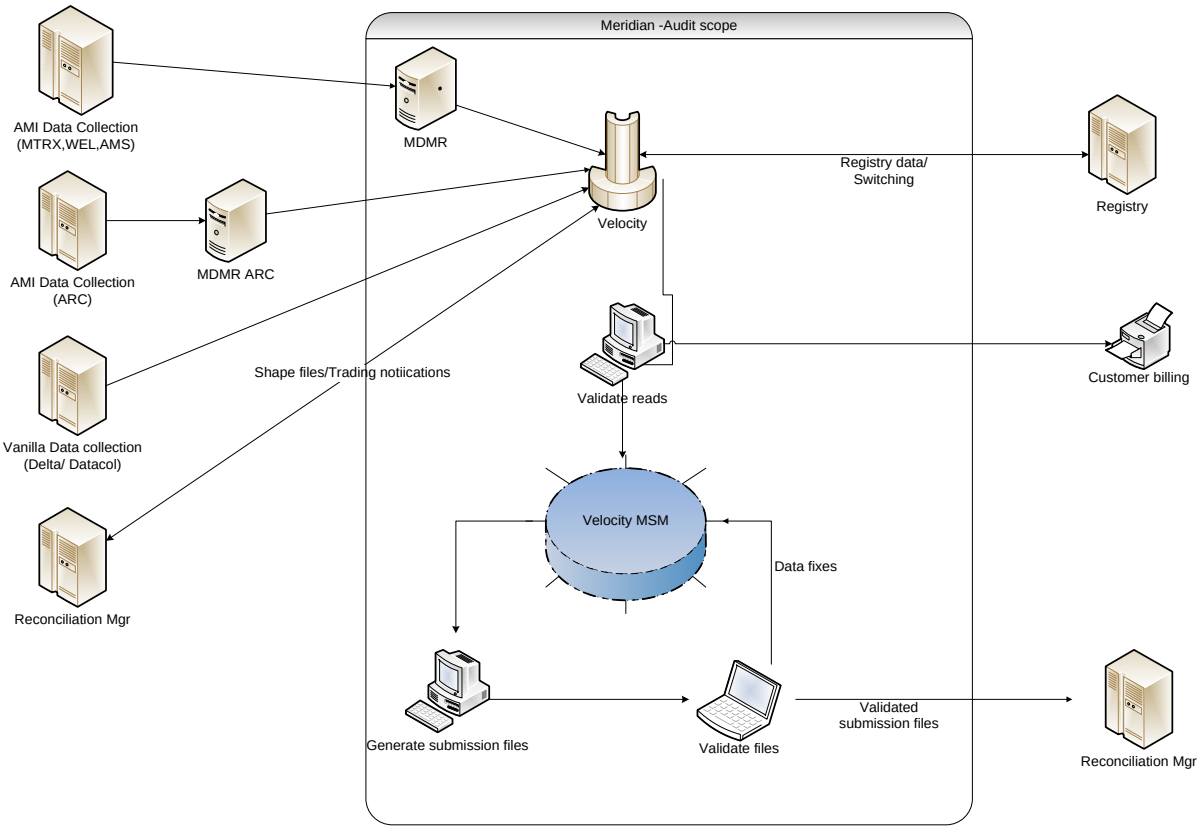
Meridian understands that they remain responsible. The relevant agents are identified in **section 1.9**. Datacol and Delta were NHH meter reading agents until 30/09/2017. Wells commenced NHH meter reading for Meridian from 1/9/17. All agents have been assessed as part of this audit. Their agent reports will be submitted as part of this audit.

## 1.5. Hardware and Software

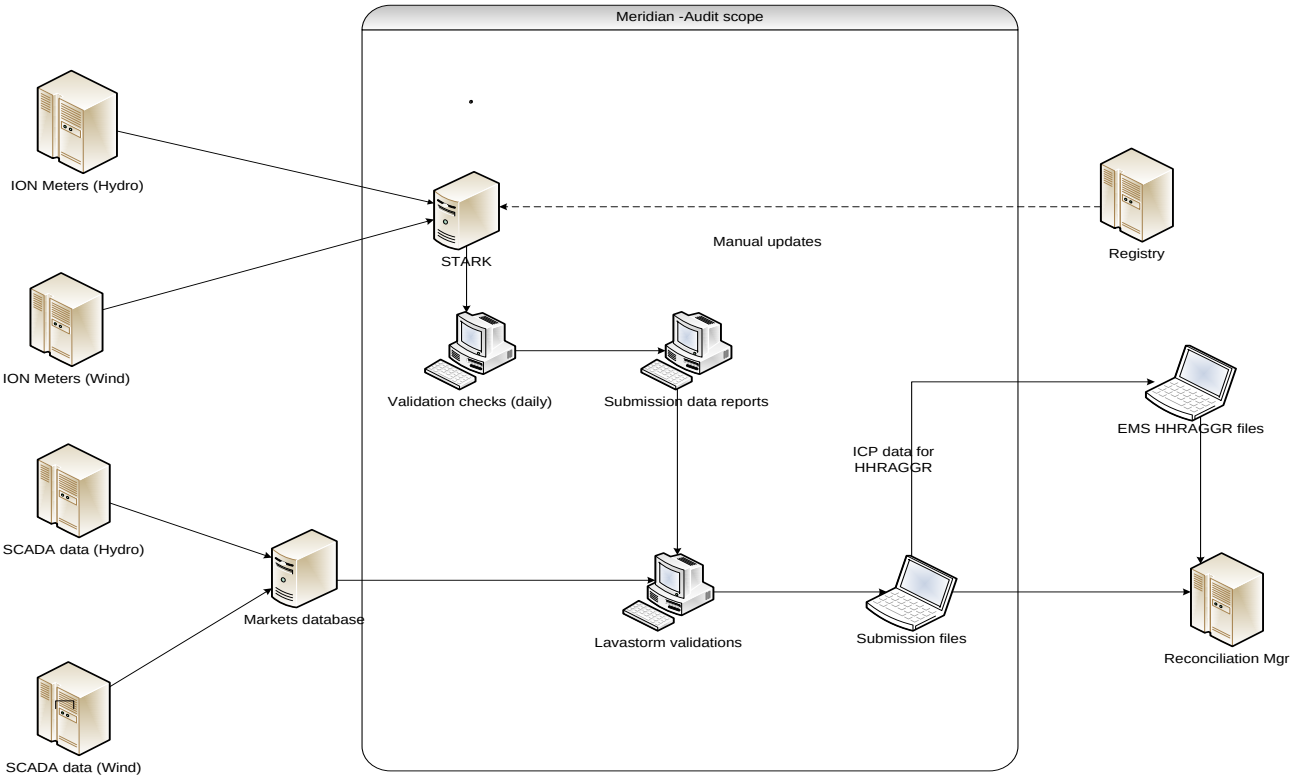
Meridian's system configurations are shown below.



## Systems Overview -NHH




## Systems Overview -Generation



## 1.6. Breaches or Breach Allegations

Meridian had two breach allegations relevant to the scope of this audit recorded by the Electricity Authority during the audit period. These both related to an allegation that Meridian's 3 phase metering did not comply with the code. These were investigated and no breach was found.

## 1.7. ICP Data

Meridian provided a list as at July 2017. The quantity of ICPs by status is shown below:

| Status | Number of ICPs 2017 | Number of ICPs 2016 | Number of ICPs 2015 |
|---|---|---|---|
| Active (2,0) | 220,702 | 221,355 | 223,735 |
| Inactive - new connection in progress (1,12) | 378 | 341 | 642 |
| Inactive – vacant (1,4) | 5,111 | 4,793 | 4,513 |
| Inactive – AMI remote disconnection (1,7) | 20 | 18 | 0 |
| Inactive – at pole fuse (1,8) | 2 | 1 | - |
| Inactive – meter removed (1,9) | 0 | 0 | 0 |
| Inactive – de-energised at meter box switch (1,10) | 0 | 0 | 0 |
| Inactive – at meter box switch (1,11) | 0 | 0 | 12 |
| Inactive – ready for decommissioning (1,6) | 168 | 385 | 337 |
| Inactive – reconciled elsewhere (1,5) | 6 | 4 | 3 |
| Inactive - code not recognised (1,0) | 1 | 0 | 0 |
| Decommissioned (3) | 33,779 | 31,821 | 29,636 |

| Metering Category | 2017 | 2016 | 2015 |
|---|---|---|---|
| 1 | 208,967 | 209,799 | 211,890 |
| 2 | 7,893 | 7,442 | 7,186 |
| 3 | 692 | 660 | 818 |
| 4 | 273 | 265 | 300 |
| 5 | 57 | 54 | 52 |
| 9 | 891 | 958 | 1,030 |
| Blank | 1,929 | 2,177 | 2,459 |

## 1.8. Authorisation Received

No letter of authorisation was required.

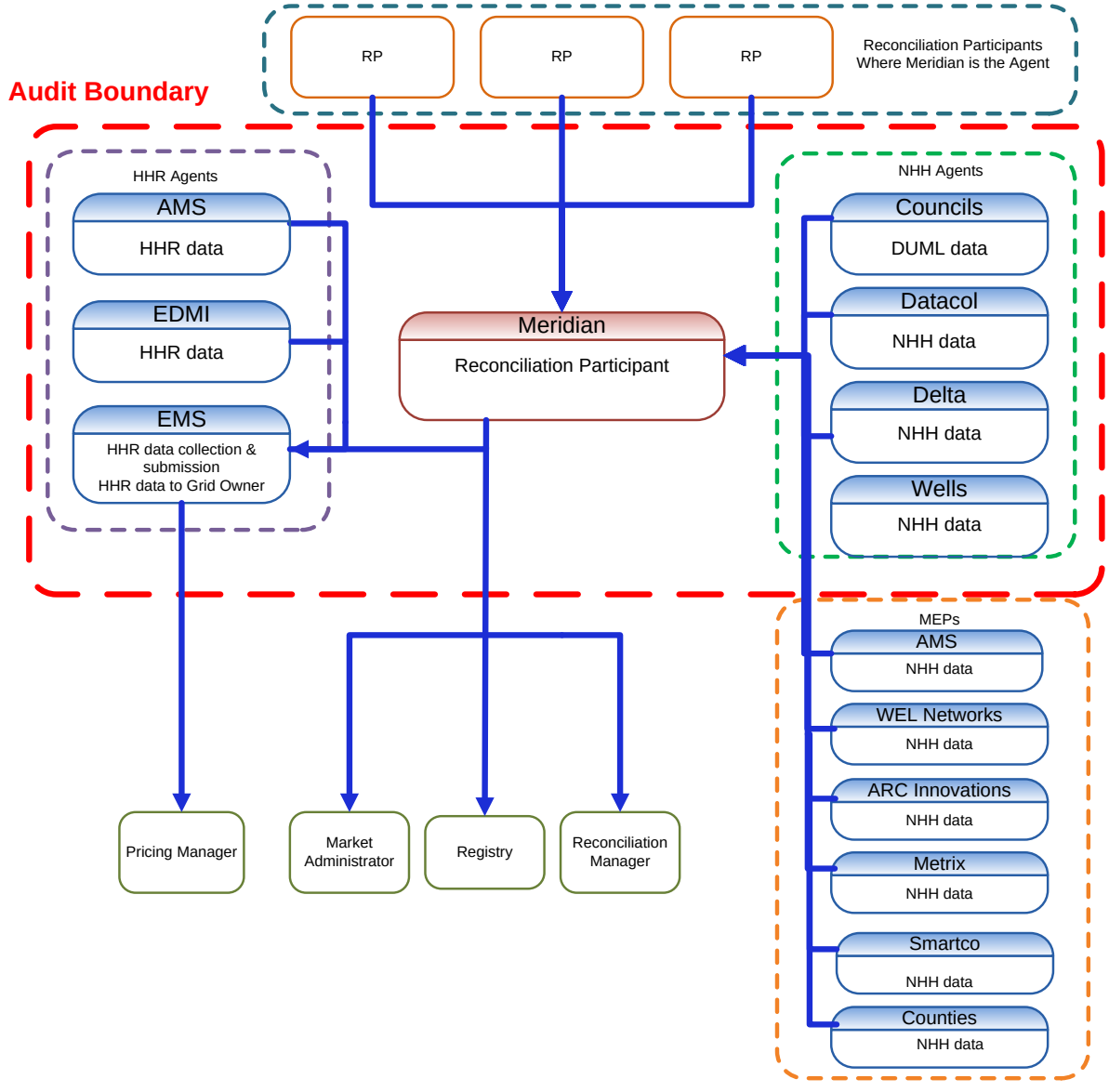
## 1.9. Scope of Audit

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of **Meridian 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.

The audit was carried out at Meridian's premises in Christchurch, on September 19th – 22nd 2017.

The scope of the audit is shown in the diagram below, with the Meridian audit boundary shown for clarity. As noted in **Section 1.4,** Datacol and Delta were agents until 30/09/17, Wells commenced data collection for Meridian from 1/9/17.



## 1.10. Summary of previous audit

Meridian provided a copy of the report from their previous audit conducted in September 2016 by Steve Woods of Veritek Ltd (lead auditor).

The status of the issues found is contained in the table below. Further comment is made in the relevant sections of this report.

# Table of Non-compliance

| Subject | Section | Clause | Non compliance | Status |
|---|---|---|---|---|
| Metering Certification | 1.9.5 | 10.14 of part 10 | Certification of two ICPs not completed within five days of energisation. | Still existing – see section 2.10 |
| Switching | 2.1.4 | 5 of schedule 11.3 | Date of estimated final bill date being incorrectly recorded as the date of the last actual read. | Still existing – see section 4.3 |
| | 2.1.5 | 6 of schedule 11.3 | AMI read from gaining trader incorrectly rejected. | Cleared |
| | 2.2.3 | 11 of schedule 11.3 | Date of estimated final bill date being incorrectly recorded as the date of the last actual read. | Still existing – see section 4.10 |
| Provision of Information to the Registry | 2.8.2 | 9 of schedule 11.1 | Registry not updated within 5 business days of the event. | Still existing – see section 3.5 |
| Changes to Registry Information | 2.8.3 | 10 of schedule 11.1 | Registry not updated within 5 business days of the event. | Still existing – see section 3.3 |
| Retailers to nominate MEP | 2.8.8 | 11.18(5) of part 11 | 1) Trading at an ICP without an MEP being recorded in the registry.<br>2) No MEP nominated until post energisation for one ICP.<br>3) 6 previously unmetered ICPs with a late MEP nomination. | Cleared |
| Registry Discrepancies | 2.8.9 | 11 of schedule 11.1 & 11.2 of part 11 | Some errors in registry data. | Still existing – see section 2.1 |
| ANZSIC Codes | 2.8.10 | 9(1)(k) of schedule 11.1 | Some active ICPs have incorrect ANZSIC codes assigned. | Still existing – see section 3.6 |
| Management of "Active" status | 2.8.12 | 12 & 17 of schedule 11.1 | Incorrect ICP status recorded on the registry. | Still existing – see section 3.8 |

| Subject | Section | Clause | Non compliance | Status |
|---|---|---|---|---|
| Management of "Inactive" status | 2.8.13 | 12 & 19 of schedule 11.1 | Incorrect ICP status recorded on the registry. | Still existing – see section 3.9 |
| Unmetered Threshold | 2.10.1 | 10.14 of part 10 | 13 ICPs with annual consumption over 6,000 kWh per annum. | Still existing – see section 5.3 |
| Changes to Unmetered Load | 2.10.2 | 9(1)(f) of schedule 11.1 | Some unmetered load data populated incorrectly on the registry. | Still existing – see section 3.7 |
| Maintaining Shared Unmetered Load | 2.10.3 | 11.14 of Part 11 | 10 ICPs with incorrect shared UML. | Cleared |
| Distributed unmetered load | 2.10.4 | 11 of schedule 15.3 | Various non-compliances exist. | Still existing – see section 5.4 |
| NHH metering information | 3.3.3 | 5(b) & (c) of schedule 15.2 | Check for phase failure not conducted and recorded. | Still existing. Refer to section 6.6. |
| Interrogate Meters Once | 3.3.5 | 7(1) & (2) of schedule 15.2 | 88 ICPs not read during period of supply. | Still existing. Refer to section 6.8. |
| Electronic Meter Reading Management | 4.2.6 | 17 of schedule 15.3 | No AMI event log management in place for ARC, Smartco and the tamper alert for AMS. | Still existing. Refer to section 9.6 |
| ICP days | 5.2 | 15.6 of part 15 | Minor ICP days discrepancies. | Still existing. Refer to section 11.2 |
| HHR aggregates | 5.4 | 15.8 of part 15 | HHR aggregates file does not contain electricity supplied information. | Still existing. Refer to section 11.4 |
| Permanence of Meter Readings | 6.1.2 | 4 of schedule 15.2 | Volume created from estimated readings is still present at 14 months. | Still existing. Refer to section 12.8 |
| Forward Estimate Process | 6.1.5 | 6 of schedule 15.3 | FE accuracy threshold not met for some balancing areas. | Still existing. Refer to section 12.12 |
| Historic Estimate Reporting | 6.2.4 | 10 of schedule 15.3 | HE targets not met for some NSPs. | Still existing. Refer to section 13.4 |

| DUML Non Compliance | | | | |
|---|---|---|---|---|
| Subject | Section | Clause | Non compliance | Status |
| Deriving submission information | 2.8.3 | 11(1) of schedule 15.3 | Non-compliance – 11 databases. | Still existing – see section 5.4 |
| ICP identifier | 2.8.3 | 11(2)(a) of schedule 15.3 | Non-compliance – 3 databases. | Still existing – see section 5.4 |
| Location of items of load | 2.8.3 | 11(2)(b) of schedule 15.3 | Non-compliance – 7 databases. | Still existing – see section 5.4 |
| Description of load | 2.8.3 | 11(2)(c) of schedule 15.3 | Non-compliance – 3 databases. | Still existing – see section 5.4 |
| Capacity of items of load | 2.8.3 | 11(2)(d) of schedule 15.3 | Non-compliance – 7 databases. | Still existing – see section 5.4 |
| Tracking of load changes | 2.8.3 | 11(3) of schedule 15.3 | Non-compliance – 11 databases. | Still existing – see section 5.4 |
| Audit trail | 2.8.3 | 11(4) of schedule 15.3 | Non-compliance – 3 databases | Still existing – see section 5.4 |

# Table of Recommendations

| Subject | Section | Clause | Recommendation for Improvement | Status |
|---|---|---|---|---|
| Changes to Unmetered Load | 2.10.2 | 9(1)(f) of schedule 11.1 | Some discrepancies exist compared to distributor's data. | Still existing – see section 5.4 |

## 2. OPERATIONAL INFRASTRUCTURE

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

**Code reference**

*Clause 10.6, 11.2, 15.2*

**Code related audit information**

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

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

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

**Audit observation**

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

**Audit commentary**

The daily notification files from the registry are actioned each day. Validation reporting is run three times a month. Any discrepancies identified are reviewed and actioned appropriately. The issue identified in the last audit of registry update files not being sent was not evident in this audit.

Analysis of the list file returned the following findings:

| Issue | 2017 Qty | 2016 Qty | Comments |
|---|---|---|---|
| ICP at status "new connection in progress" (1,12) with an initial energisation date populated by the Distributor | 16 | 22 | Ten have since been updated to active on the registry. The remaining six are discussed in **Section 3.9** |
| Active date variance with Initial Energisation Date | 81 | 39 | These are discussed in detail in **Section 3.8.** |
| Submission flag discrepancies | 2 | 5 | ICP 0007138352RNA13 is a category 3 site with a NHH submission flag and RPS profile. The meter certification report states Category 2, therefore Meridian is correct in using the RPS profile.<br>ICP 0007161412RN860 is detailed below. |

| Issue | 2017 Qty | 2016 Qty | Comments |
|---|---|---|---|
| Distributed Generation profile not recorded on the registry | 0 | 58 | |
| Blank ANZSIC codes | 0 | 1 | No evidence found if this occurring |
| Meter cat 3 or known commercial site with residential ANZSIC code | 2 | 2 | See **Section 3.6** |
| Incorrect ANZSIC code applied | 2 | 8 | See **Section 3.6** |
| ANZSIC "T999" not stated | 12 | 5 | |
| ANZSIC "T994" don't know | 29 | 48 | |
| ANZSIC "T998" outside of scope | 0 | - | |
| Active ICPs with blank MEP and no MEP nominated and UML =N | 0 | 1 | All active ICPs had an MEP recorded. |
| ICPs with Distributor unmetered load populated but Meridian has none | 86 | 90 | All are metered supplies. |
| ICPs with standard unmetered load flag Y but load is recorded as zero | 2 | 89 | See **Section 3.7** |
| ICPs with incorrect shared unmetered load | 0 | 10 | |
| ICPs have UML flag N and no shared unmetered load but Distributor field shows shared unmetered load. | 0 | 0 | |

ICP 0007161412RN860 was downgraded from HHR to NHH, and had an incorrect profile recorded on the registry on 05/02/2017 and 06/02/2017 as shown in the table below. The profiles are correctly

recorded in Velocity, but there was an issue with the processing of the meter change resulting in a missing ICP day:

| Date | Correct profile | Registry profile | Match |
|---|---|---|---|
| 04/02/2017 and prior | HHR | HHR | Yes |
| 05/02/2017 | HHR | RPS | No |
| 06/02/2017 | RPS | HHR | No |
| 07/02/2017 onwards | RPS | RPS | Yes |

ICPs missing reports are monitored along with other reports to confirm submission has occurred for all active ICPs. Non-compliance is recorded in **Section 11.2** in relation to site upgrades and downgrades resulting in one ICP day being omitted per ICP.

Meridian's controls are generally sound with regard to the identification and correction of information. This audit identified some missing validations that have resulted in some ICPs with incorrect active dates and incorrect profiles.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.1<br>With: 11.2 & 15.2<br><br><br><br>From: 01-Aug-16<br>To: 31-Jul-17 | Some errors found in registry data.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The controls are rated as moderate as they identify most of the errors but not all.<br>The audit risk rating is low as only the discrepancies identified will have a minor effect on submission. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Actions taken in relation to the specific discrepancies identified above have been recorded in detail in the relevant section of this report. | | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| In addition to existing discrepancy reporting processes (which focus primarily on mismatches between our Gentrack Velocity (GTV) system and the Registry), we intend to develop a number of automated reports to run regularly against Registry LIS and EDA files with a view to identifying and resolving issues more quickly. | June 2018 | |

### 2.2. Provision of information (Clause 15.35)

#### Code reference

*Clause 15.35*

#### Code related audit information

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

#### Audit observation

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

### Audit commentary

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

### Audit outcome

Compliant

## 2.3. Data transmission (Clause 20 Schedule 15.2)

### Code reference

*Clause 20 Schedule 15.2*

### Code related audit information

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

### Audit observation

I reviewed the method to receive meter reading information.

**HHR**

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

**NHH**

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

Upon receipt all AMI reads are imported into the MDMR database 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 MDMR.

I traced a diverse sample of reads for 35 NHH ICPs from the source files to Velocity. Readings for five ICPs were checked for each of the following meter reading providers:

- AMS
- Arc
- Datacol
- Delta
- Metrix
- Smartco
- Wells

**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 ten 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**

NHH meter data is transmitted to Meridian using SFTP.

I traced reads for a sample of 35 ICPs from the source files to Velocity. Reads for 34 ICPs were recorded and labelled correctly. ICP 0001750534TGF88 switched in effective 30/08/2017. When readings were received on 14/09/2017, the read for one register was one unit lower than the switch read. A user manually removed the invoice header to cancel the reads, then re-entered estimate readings for all three registers. The readings for two registers matched what was provided by Wells, and the third reading was modified to match the switch reading to remove the negative consumption. This resulted in forward estimate being calculated for reconciliation submissions when actual readings were available. This is recorded as non-compliance in **section 9.1** for incorrect labelling of the readings. The read transmission process itself was found to be compliant.

Meridian confirmed that estimation where negative consumption occurs is not normal practice. I confirmed this by reviewing two other negative NHH readings; both were entered as actual in Velocity, and reported correctly for reconciliation.

**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. Missing data is most likely to occur due to a temporary communications issue. I reviewed an example for Benmore on 04/09/2017, and noted that the missing data was retrieved. Clock synchronisation is discussed further in **section 7.4**.

I matched the generation data received by Stark to the data received from SCADA for the first ten 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*
- *provided to and received from the reconciliation manager*
- *provided and received from other reconciliation participants and their agents.*

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

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

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

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

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

**Audit observation**

A complete audit trail was checked for all data gathering, validation and processing functions. I reviewed audit trails for a small sample of events. Large samples were not necessary because audit trail fields are expected to be the same for every transaction of the same type.

**Audit commentary**

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

**Audit outcome**

Compliant

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

**Code reference**

*Clause 10.4*

**Code related audit information**

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

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

**Audit observation**

I reviewed 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 discussed compliance with these clauses.

**Audit commentary**

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

**Audit outcome**

Compliant

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

**Code reference**

*Clause 10.35(1)&(2)*

**Code related audit information**

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

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

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

**Audit observation**

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

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

**Audit commentary**

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

**Audit outcome**

Compliant

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

**Code reference**

*Clause 11.15B*

**Code related audit information**

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

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

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

**Audit observation**

I reviewed 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. Electrical connection of an ICP (Clause 10.32)

### Code reference

*Clause 10.32*

### Code related audit information

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

- *accept responsibility for the ICP and the obligations under Parts 10 and 11, and, under Part 15; and*
- *have an arrangement with an MEP to provide metering at the point of connection under Part 15.*

### Audit observation

The new connection process was examined in detail to evaluate the strength of controls. The list file and event detail report for the period from 1/1/17 to 31/7/17 were analysed to confirm whether process compliance and controls are functioning as expected.

### Audit commentary

Meridian new connection process requires all ICPs to be taken to the "new connection in progress" status in the registry and the MEP is nominated at the same time. Discrepancy reporting identifies any issues in the workflow.

### Audit outcome

Compliant

## 2.10. Metering certification (Clause 10.33(2))

### Code reference

*Clause 10.33(2)*

### Code related audit information

*A reconciliation participant may energise or authorise the energisation of a connection only if the reconciliation participant has accepted responsibility for the point of connection if one or more certified metering installations are in place.*

### Audit observation

The list file and event detail report for the period from 1/1/17 to 31/7/17 were analysed to confirm process compliance and controls are functioning as expected. I checked all of the new connections from the event detail report comparing the meter certification date and the active date. This identified two ICPs were not certified within five business days of energisation.

### Audit commentary

The new connection process ensures the MEP is nominated.

| ICP | MEP | Energisation date | Certification date | Days elapsed |
|---|---|---|---|---|
| 0000041040WEA37 | NGCM | 31/01/17 | 16/05/17 | 71 |
| 0000379392MP880 | NGCM | 20/12/16 | 16/1/17 | 15 |

Certification is an MEP responsibility but their delay in the certifying these sites has caused Meridian to be non-compliant.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.10<br>With: 10.33(2)<br><br><br><br>From: 20-Dec-16<br>To: 16-May-17 | 2 ICPs certified later than 5 days after energization.<br>Potential impact: Low<br>Actual impact: None<br>Audit history: Twice<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The new connection process has good controls to ensure that MEPs are in place for new connections.<br>The audit risk rating is low as only 2 ICPs were found with late certification. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| 0000041040WEA37 – Job details for returned for this ICP indicated the meter had been certified for an interim period which expired on 30/04/017. Our metering team followed up with the MEP soon after this to ensure they returned to fully certify the meter.<br>0000379392MP880 – There was insufficient load on site when the contractor installed the meter. Our team followed up with the MEP for metering details soon after we were made aware the ICP had been energised. | Complete<br>Complete | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| We consider the 2 ICPs identified, over a period of 7mths, are exceptions only and robust processes and controls enable us to identify and investigate instances where metering has not been certified when an ICP is energised.<br>We intend to develop a number of automated reports to run regularly against Registry LIS and EDA files with a view to identifying and addressing issues more quickly. This will include monitoring compliance with this clause to ensure any increase in the number of exceptions can be quickly addressed with the MEP(s) concerned. | Ongoing<br>June 2018 | |

## 2.11. Arrangements for line function services (Clause 11.16)

### Code reference

*Clause 11.16*

### Code related audit information

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

### Audit observation

The process to ensure an arrangement is in place before trading commences on a Network was examined, and controls within Velocity were checked.

### Audit commentary

Meridian demonstrated the existence of either a UoSA or other trading arrangement for all networks it trades on. Compliance is confirmed.

### Audit outcome

Compliant

## 2.12. Arrangements for metering equipment provision (Clause 10.36)

### Code reference

*Clause 10.36*

### Code related audit information

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

### Audit observation

The process to ensure an arrangement is in place with the metering equipment provider before an ICP can be created or switched in was checked, and a check of controls within Velocity.

### Audit commentary

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

### Audit outcome

Compliant

## 3. MAINTAINING REGISTRY INFORMATION

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

**Code reference**

*Clause 11.3*

**Code related audit information**

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

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

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

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

**Audit observation**

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

**Audit commentary**

This requirement is well 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 about each ICP at which it trades electricity in accordance with Schedule 11.1.*

### Audit observation

The new connection process was examined in detail. The list file was analysed in conjunction with the event detail report for the audit period 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 is detailed there.

### Audit commentary

The new connection process is detailed in **Sections 2.9** and **3.5**. The process in place ensures that the trader required information is populated as required by this clause.

### Audit outcome

Compliant

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

### Code reference

*Clause 10 Schedule 11.1*

### Code related audit information

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

### Audit observation

The process to manage status changes is discussed in detail in **Sections 3.8** and **3.9** below. In this Section I have examined the event detail report for the period from 1/1/17 to 31/7/17 to determine the overall performance for that period. I used the extreme case methodology examining a sample of ten ICPs that were updated greater than 30 days from the event date for each of the event type updates, with the exclusion of new connections in progress (these can only be non-compliant if not updated within five business days of energisation). The seven ICPs that were updated greater than five business days from energisation were examined in relation to this.

### Audit commentary

| Event | Year | Total ICPs | ICPs notified within 5 days | ICPs notified greater than 5 days | Average notification days | Percentage compliant |
|---|---|---|---|---|---|---|
| Change to active - Reconnections | 2015 | 2,731 | 1,672 | 1,059 | 36.0 | 61% |
| | 2016 | 3,845 | 2,808 | 1,037 | 12.0 | 73% |
| | **2017** | **3,059** | **2,436** | **623** | **12.9** | **80%** |
| Change to de-energised vacant (excluding new connection in progress and ready for decommissioning statuses) | 2015 | 2,640 | 2,256 | 384 | 6.9 | 86% |
| | 2016 | 888 | 807 | 82 | 4.5 | 91% |
| | **2017** | **3,600** | **3,484** | **261** | **1.7** | **97%** |

| Event | Year | Total ICPs | ICPs notified within 5 days | ICPs notified greater than 5 days | Average notification days | Percentage compliant |
|---|---|---|---|---|---|---|
| Change to de-energised ready for decommissioning | 2015 | 1,459 | 619 | 840 | 30.2 | 42% |
| | 2016 | 505 | 246 | 259 | 27.7 | 49% |
| | **2017** | **218** | **80** | **138** | **74.6** | **37%** |
| Change to de-energised new connection in progress | 2015 | 2,837 | 2,818 | 19 | 0.6 | - |
| | 2016 | 998 | 889 | 109 | 2.14 | - |
| | **2017** | **1,918** | **1,911** | **7** | **0.5** | **99.6%** |
| Change of MEP | **2017** | **2,887** | **1,869** | **1,081** | **2.7** | **65%** |

Reconnections

The process to manage service requests uses the queue management functionality in Velocity to queue all service requests, due or past due. The field services team then works these queues to ensure that all service requests are resolved.

The field service providers have been rationalised during the audit period giving Meridian better control of activities in the field. The service level agreement in place requires that paperwork be returned to Meridian within two business days of completion.

The percentage of reconnections updated within five days has improved from 73% to 80%. There were 173 reconnected ICPs where the notification date was more than 30 business days. This trending down year on year from 274 in 2016, and 409 in 2015. The sample checked found:

- Six of these have since been decommissioned and the ICP status was backdated to active to account for consumption on vacant. They have since been decommissioned.
- Two were found through revenue risk investigations and were backdated to the date of the unauthorised reconnection to correct.
- ICP 0007069642RN303 was backdated to active to remove the meter and decommission the ICP but was incorrectly left as active for the intervening period.
- ICP 0000028820UN773 was found to at the incorrect status as it switched away so was corrected for the intervening period.

De-energisation Vacant or similar

Meridian actively monitors vacant properties using the following steps:

Day 1 – letter is sent to site - encouraging the occupant to apply for supply.

Day 14 - vacant card sent - advising the occupier to contact Meridian to keep the power on.

Day 28 - final card issued to site - requesting the occupier to call Meridian urgently to avoid any interruption to supply.

Day 40 – All active ICPs without a registered customer are reviewed. The low consuming AMI sites are remotely disconnected. All other sites are sent for investigation to field services.

Day 55 - A disconnection is raised for the relevant field service provider to physically disconnect the site. Field Service providers have an SLA to return paperwork back within two days of work being completed.

The percentage of disconnections updated within five days has improved from 91% to 97%. The average number of days to update the registry has improved from 4.5 days to 1.6 days. The updating of remotely disconnected ICPs is automated, and has contributed to the shortened cycle time. Work queue items are raised for exceptions. These are reviewed and actioned accordingly. All paperwork from this field is returned electronically and these are worked in job queues.

There were 24 ICPs that were not updated within 30 days of the effective date. The sample checked found these were due to a variety of issues:

- Three were backdated as part of the private streetlight clean up that is being worked through by Orion as they identify and decommission orphan ICPs that were historically created to account for private streetlights rather than adding them to the property ICP. These were moved to vacant prior to being decommissioned.
- Two ICPs were delayed due to other internal departments not advising the correct team in Meridian (both were damaged due to fire).
- The remaining five ICPs were due to damage to properties from either earthquake or fire or were corrections.

Inactive - Ready for Decommissioning

The decommission process varies from network to network with some advising Meridian to move the ICP to "Ready for decommission" after the event whilst for others Meridian will move the ICP to "ready for decommissioning" in advance of the decommissioning. The sample checked found that the reasons these were backdated were:

- Three were due to earthquake damaged ICPs in the Christchurch area. Orion continues to have a backlog of these sites to be decommissioned. Meridian has engaged with Orion's agents to get them to remove meters. Meridian does not change the status of the ICP to (1,6) "Inactive, Ready for Decommissioning", until they have confirmation from Orion that the ICP has been decommissioned.
- Three were advised late from other networks.
- Three were found through meter readers or meter change requests reporting that the site had been demolished and Meridian then investigated to confirm.
- ICP 0165427124LC4C3 was notified to Meridian but the receiving team did not pass the information on to the correct team to action.

Inactive - New Connection in Progress

Meridian populates the registry for all new connections with the inactive status of (1,12) "New connection in progress" in the first instance. The MEP nomination is then sent as part of the same action within Velocity. As this action occurs before energisation, non-compliance can only occur if this status update occurs greater than five business days after energisation (i.e. a backdated new connection). Analysis of the seven ICPs updated greater than five days found:

- One was compliant
- Four ICPs were backdated due to Meridian's correction process where rather than reverse the incorrect active date the "new connections in progress" and "active" events are replaced hence they appear to be backdated. These were all taken to the "new connection in progress" status in the first instance and are therefore compliant.
- ICP 1000566367PCBBD was a backdated new connection.

Change of MEP

The process to manage MEP changes is discussed in detail in **Section 3.11** below. The event detail analysis identified 1,918 MEP nomination events. The nomination date was compared to the metering event effective date to identify any ICPs that were not nominated within five business days and found 65% of these were sent within five days of the meter certification. The sample of late nominations found:

- Six were caused by "event stacking". This is where an earlier event being loaded by another participant prevented Meridian from loading their MEP nomination event. The other participant was required to reverse the earlier event and then Meridian could load the MEP nomination with the correct effective date. These related to the bulk AMI meter roll out process. This will be complete by the end of September 2017 and therefore the timeliness of MEP changes should improve.
- One nomination was missed in a bulk upload due to human error.
- ICP 0000050386ML223 had an incorrect MEP nomination which was reversed, but the new nomination was raised late due to human error.
- ICP 0233644040LCA5C was incorrectly recorded on the registry as having FCLM metering but was found to have AMCI metering and was corrected upon discovery.
- ICP 0006617077RNA15 had a meter replaced by an MEP that doesn't normally place meters in this geographic location, therefore the MEP nomination was missed in this instance.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.3<br>With: 10 Schedule 11.1<br><br>From: 01-Jan-17<br>To: 31-Jul-17 | Registry information not updated within 5 business days of the event.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Moderate<br>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 reflects room for improvement.<br>The audit risk rating is low as overall the timeliness to update the registry is high and showing an improved performance year on year, especially with those events that have a direct impact on submission accuracy. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| The incorrect active status identified for ICP 0007069642RN303 has been corrected in the Registry | Complete | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| *Reconnections*<br>We have identified that a system limitation requiring us to change an ICP status to active before being able to raise a decommission job is resulting in unnecessary backdated active entries on the registry and increases risk of an incorrect status being recorded in the Registry. We will review our process and system functionality with a view to finding an alternate solution to process these decommissions which relate largely to historic earthquake affected ICPs in Orion. | April 2018 | |
| *De-energised Vacant*<br>We will update our contact centre process to ensure reports of fire affected ICPs are promptly reported through to the correct team for follow up with the customer/network company regarding the ICP connection status. | February 2018 | |
| *Change of MEP*<br>The auditor has noted some issues arising where MEP switches are raised in bulk as part of our deployment process which has had a further extension to June 2018. We will investigate whether there are improvements that could be made to our follow up processes where any bulk MEP nominations fail due to a later MEP event. | April 2018 | |

### 3.4. Trader responsibility for an ICP (Clause 11.18)

**Code reference**

*Clause 11.18*

**Code related audit information**

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

*A trader ceases to be responsible for an ICP if:*

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

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

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

**Audit observation**

Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process was discussed and the list file, as at July 2017, was examined to identify that all active ICPs have an MEP recorded. This analysis found nine active ICPs that do not have an MEP recorded in the registry, and these were examined.

ICP Decommissioning

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

**Audit commentary**

Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process is discussed in detail in **Sections 2.9** and **3.5**. Meridian nominate the MEP at the same time as taking the ICP to the "inactive - new connection in progress" status. All new connections have an MEP nominated.

The nine ICPs with no MEP recorded in the registry were analysed and found that all had had an MEP nominated and the MEP had accepted. It is the MEPs responsibility to load metering to the registry.

ICP Decommissioning

Meridian continues with their obligations under this clause. ICPs that are vacant and active, or inactive are still maintained in Velocity. 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. Meridian also advises the MEP responsible that the site is to be decommissioned, or has been decommissioned dependant on the Distributor's process. In the case of Orion, the site is not set to "Ready to Decommission" until they have confirmed this is done. In the case of Powerco the ICP is set to "Ready for Decommission" prior to decommission.

The sample checked confirmed that all had a removal read gained.

**Audit outcome**

Compliant

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

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

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

#### Audit observation

The new connection process was examined in detail. The list file was analysed in conjunction with the event detail report for the period from 1/1/17 to 31/7/17 to evaluate the updating of the registry in relation to new connections. I used the extreme case methodology examining all nine ICPs that were updated greater than 30 days from the event date and a sample of five ICPs not updated between 20-30 days using the homogenous sample technique.

#### Audit commentary

| Event | Year | Total ICPs | ICPs notified within 5 days | ICPs notified greater than 5 days | Average notification days | Percentage compliant |
|---|---|---|---|---|---|---|
| New connections Change to active | 2015 | 2,259 | 1,670 | 589 | 6.2 | 74% |
| | 2016 | 659 | 590 | 69 | 3.6 | 90% |
| | **2017** | **1,471** | **1,212** | **259** | **3.7** | **82%** |

NHH New Connections

The process to manage service requests uses the queue management functionality in Velocity to queue all service requests, due or past due. The field services team then works these queues to ensure that all service requests are resolved. AMS also send a status report of all outstanding service requests. Once a job has been deferred three times AMS cancels the service request and requests the electrician to 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.

Meridian's change to remove the reliance on the MEP to load their metering on the registry before they could make the ICP active caused a workflow issue in Velocity which results in the ICP status not updating to active on the registry. This is being managed manually until the system issue can be resolved. Reporting is in place to identify affected ICPs whilst the manual work around is in place. This issue combined with a change of MEP sub contractor that resulted in paperwork being returned late for a short period, has caused a decline in the overall number of ICPs being updated to active within five business days. Whilst overall level of compliance has declined the average time to update the registry has only declined by 0.1 day compared with the last audit.

The nine ICPs (0.006% of all new connections) updated for 30 days or more examined and found eight of them were NHH new connections:

- Five were due to the workflow issue. These were identified via the reporting in place and corrected once the details had been confirmed.
- Two were corrections to amend the active date.
- ICP 1000566367PCBBD was a backdated new connection.

The sample of five new connections updated between 20-30 days checked found four were NHH new connections:

- Two were late due to late paperwork back from the field.
- One was late due to incomplete paperwork being received.
- One was due to the workflow issue causing the active update not to flow to the registry. This was picked up and corrected via the reporting in place.
- One was a correction to the active date.

This analysis highlighted an additional check to the reporting already in place. I recommend that a check for any ICPs at "inactive - new connection in progress" status where the Distributor has populated the initial energisation date be put in place to assist with identification of newly connected ICPs that are potentially at the incorrect status.

| Description | Recommendation | Audited party comment | Remedial action |
|---|---|---|---|
| Energisation of an ICP | Identify any ICPs that are at "inactive - new connection in progress" status that have an initial energisation date populated. | We will implement this reporting as recommended | Identified |

HHR New Connections

The HHR new connection process was examined. As found with other Retailers, this process is largely manual due to the complexity of such connections. The progress of these is managed closely. These ICPs are not taken to active until the metering has been loaded to the registry. I recommend that the reliance on the MEP to load metering is reviewed.

| Description | Recommendation | Audited party comment | Remedial action |
|---|---|---|---|
| Energisation of an ICP | Update HHR ICPs to active as soon as all details are known to Meridian. | This process has been revised so that the status is updated on the Registry as soon as we are aware the ICP is energised. | Identified |

Two of the late new connections sample checked were HHR sites:

- ICP 0007178335RN3BC was a backdated TOU switch back to the time the site was energised. This site started with Genesis but then switched to Meridian and Genesis reversed their active event. Meridian updated to active as soon as they were able to.
- ICP 0007178460RN9F9 was delayed due to late paperwork back from the field.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.5<br>With: 9 Schedule 11.1<br><br>From: 01-Jan-17<br>To: 31-Jul-17 | Registry information not updated within 5 business days of the event.<br>Potential impact: Medium<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The manual work around in place presents a higher risk of error but the reporting in place to identify ICPs that have been missed in the manual process mitigates this risk hence the control rating of moderate.<br>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 |
|---|---|---|
| The issues causing paperwork delays following the change of MEP sub-contractor have largely been resolved with our reporting indicating compliance has now returned to previous levels. | Complete | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| We are investigating making a system change to remove the manual step in the new connection workflow. | May 2018 | |
| We will re-implement reporting to monitor ICPs with the IE date populated but paperwork not received. This will be included in the enhancements to our Registry discrepancy reporting mentioned in **section 2.1** | June 2018 | |
| We have revised our HH new connection process to ensure the Registry status is updated as soon as we are aware the ICP is energised. | Complete | |

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

**Code reference**

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

**Code related audit information**

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

### Audit observation

The process to capture and manage ANZISC codes was examined. A Registry list file was reviewed to check ANZSIC codes.

### Audit commentary

ANZSIC codes are captured at the time the customer either switches into or gets connected by Meridian. A report is run every three to six months to check for any "T9" codes. The list file was examined in relation to ANZSIC code allocation for all active ICPs with the following findings:

- 29 ICPs have an ANZSIC code "T994" – "don't know"
- 12 ICPs with "T999"- "not stated"
- 1 ICP with "T998"- "Response Outside Scope"

A sample of five of these were checked and found that three were "active-vacant" therefore there was no customer to determine what business type was present and the code "don't know" is valid. The remaining two ICPs are being investigated.

Two ICPs were recorded with a residential ANZSIC code but have meter category 3 or above on site. These are not the same ICPs as recorded in last year's audit. Both were found to have been missed due to human error and have since been corrected.

### Audit outcome

Non-compliant

| Non-compliance | Description | | |
|---|---|---|---|
| Audit Ref: 3.6<br>With: 9 (1(k) Schedule 11.1<br><br>From: 01-Aug-16<br>To: 31-Jul-17 | Incorrect ANZSIC code recorded for 2 ICPs.<br>Potential impact: None<br>Actual impact: None<br>Audit history: Multiple<br>Controls: Strong<br>Breach risk rating: 1 | | |
| **Audit risk rating** | **Rationale for audit risk rating** | | |
| **Low** | Reporting is in place to identify discrepancies hence the rating of strong.<br>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** |
| The incorrect ANZSIC codes identified have been corrected<br>ICPs with a T99 ANZSIC Code as at the date of audit have been reviewed and updated as part of our BAU process | | Complete<br>Complete | Identified |
| **Preventative actions taken to ensure no further issues will occur** | | **Completion date** | |
| Periodic reporting already in place monitors instances of T99 ANZSIC Codes and these are reviewed and updated regularly.<br>We will enhance our existing reporting to identify instances where an incorrect ANZSIC code have been entered. This will be included in enhancements to Registry discrepancy reporting mentioned in **section 2.1.** | | Ongoing<br>June 2018 | |

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

**Code reference**

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

**Code related audit information**

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

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

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

### Audit observation

The process to manage unmetered load was examined. The list file as at July 2017 was examined to identify any ICPs where:

- Unmetered load is identified by the Distributor and none is recorded by Meridian.
- Meridian's unmetered load figure doesn't match with the Distributor's figure (where it's possible to calculate this if the Distributor is using the recommended format) and the variance is greater than 1.0kWh per day. 1.0 kWh per day was chosen as a sample only; this does not indicate compliance is achieved if an error is found that is less than 1.0 kWh per day.

### Audit commentary

Meridian checks unmetered loads as part of the registry discrepancy process. They have 2,965 ICPs with standard unmetered load indicated. The following issues were found by checking the registry list file.

- 86 ICPs have information populated in the distributor's unmetered load field, but the retailer field is blank and the unmetered flag is "N". All of these ICPs have metering recorded against them. It is unclear which party is correct. I recommend that Meridian liaise with the relevant Distributor to confirm if there is any unmetered load present.
- Two ICPs have zero populated in the daily unmetered kWh field
    - ICP 0042429011PC1E4 was recorded in last year's audit and is still under investigation. Powerco have been to site but due to insufficient work gear they were unable to access the equipment to confirm and plan to go back at a later date to access.
    - ICP 0000100018WP6F5 is described as "residual load" but with a reconciliation type of "GN".
- The distributor's field was populated in the correct format for 1,285 ICPs. The daily unmetered kWh from the distributor's field was within 1 kWh per day of Meridian's field for 908 (68%) ICPs. 377 ICPs had a difference of more than 1.0 kWh per day and 21 of those had a difference of greater than 2 kWh. I checked a sample of 20 ICPS with a load difference and found six with the same load description between both parties but Meridian's load was incorrect. This is recorded as non-compliance. For the remaining 14 ICPs it is not clear which figures are correct. I recommend Meridian liaises with Distributors to identify whether any changes are required to their data or Meridians.

| Description | Recommendation | Audited party comment | Remedial action |
|---|---|---|---|
| Changes to unmetered load | Confirm the unmetered load for the 86 ICPs where the Distributor has indicated an unmetered load and Meridian has none and confirm the unmetered load for any ICPs where the load difference is greater than 1 kWh and the load descriptions are different. | A review of these discrepancies is in progress.<br>Actions identified to date as a result of these reviews are detailed below. | Investigating |

I checked that Meridian is submitting unmetered load correctly, which it is where their unmetered field is populated correctly.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.7<br>With: 9 (1)(f) Schedule 11.1<br><br>From: 01-Aug-16<br>To: 31-Jul-17 | Some incorrect unmetered loads populated to the registry.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Reporting is in place to identify discrepancies, but discrepancies were found hence the rating of moderate.<br>The audit risk rating is low as the volumes associated with these ICPs is small. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| ICP 0042429011PC1E4 – Further investigations for this ICP with the network company identified that the ICP was a duplicate and it has since been decommissioned | Complete | Identified |
| ICP 0000100018WP6F5 – As reported this is a residual load ICP for OTI0111 balancing area which is settled by differencing. Zero UML is correct. | N/A | |
| We have reviewed and corrected the 6 ICPs where our UML figure was identified as incorrect. | Complete | |
| We will review the discrepancies identified and correct any UML found to be incorrect. | Feb 2018 | |

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|---|---|
| When ICPs with UML switch to Meridian, a queue is raised in our system so that the UML can be checked for accuracy. | Ongoing | |
| We have identified that some UML was incorrectly populated as part of the initial energisation process. We are investigating what additional controls can be implemented to prevent this. | March 2018 | |
| We will review the daily UML figure historically used for builders temp supplies in Orion so this is aligned with the distributors UML calculation. | March 2018 | |
| We will liaise with Orion regarding their UML calculation for a number of Arc unmetered controllers as this appears to be inaccurate | Dec 2017 | |
| We will request Vector remove the UML details for the bus shelters that are now metered. | Dec 2017 | |
| We will include monitoring of UML discrepancies in the enhancements to our Registry discrepancy reporting mentioned in **section 2.1** | June 2018 | |

### 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 energised (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 event detail report and list file report were checked for any variances between the initial energisation date and the active date. I checked a sample using the diverse characteristics case methodology of 20 ICPs with a variance between the active date and the initial energisation date and the meter certification. This was selected by network (to check both metered and unmetered builders' temporary supplies). I specifically looked at this as I have found that some BTS metered supplies are not being recorded on the registry and therefore the first active date and meter certification date is that of the permanent supply, but there were no examples found in this audit.

The process for the management of ICP reconnection was examined and is discussed in **Section 3.3**. The event detail report for the period of 1/1/17-31/7/17 was analysed and the findings in relation to the timeliness of updates to registry are recorded in **Section 3.3**.

### Audit commentary

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 kWh.

Active Date vs. Initial Energisation Date

| | New Connections | Of those populated Active vs. IED Matched | Different |
|---|---|---|---|
| Distributor Initial Energisation Date | 1,466 | 1,385 (95%) | 81 |

66 of the ICPs with a different initial energisation date were found to have a meter certification date that matched to Meridian's active date suggesting that the Distributors date is incorrect in these instances. A sample of five of these were checked to confirm this and found:

- Connection paperwork was sighted for two NHH ICPs and this confirmed Meridian's active date was correct.
- Two ICPs were HHR new connections and Meridian's active date was confirmed as correct. This occurs when the Distributor's initial energisation date is the "connected" date and there was a central supply connected. Specifically this is where there is a shared service main to a separate distribution point (central supply point) which is not owned by Distributor and where energisation can occur at a later date without the Distributor's knowledge.
- ICP 0000568486NRA1D was notified by email and no connection paperwork was sighted to confirm if Meridian's active date was correct.

Eight ICPs had a meter certification and initial energisation date that matched which suggests that Meridian may have the incorrect active date. These were checked and found:

- Three were updated to active for the incorrect active date due to human error. This is recorded as non-compliance.
- Three ICPs where the paperwork confirms the active date, but it was noted that the connection time noted was 11pm at night which suggests this was when the paperwork was being completed and not when the energisation occurred. These are being queried with the MEP.
- ICP 0000568419NRA24 was temporarily energised on 2/3/17 to certify the metering but was not energised until 13/3/17. This is compliant.
- ICP 0000568419NRA24 is a HHR new connection and the half hour data confirmed Meridian's active date is correct.

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

| | New Connections | Matched | Different |
|---|---|---|---|
| **Meter Certification** | **1,166** | **1,119 (96%)** | **47** |

39 (81%) of these are on the Orion network. They use unmetered builders' temporary supplies. In these instances, the meter certification will never align with the ICPs first active date. A sample of five ICPs were checked as part of a diverse sample and found:

- Two were unmetered BTS supplies on the Orion network and therefore the dates don't align.
- ICP 1001300094LCC5D started as an unmetered supply but has since been metered.
- Two ICPs were certified late. These are recorded as non-compliance in **Section 2.10.**

As detailed in **Section 3.5**, I recommend that additional reporting is put in place to check for initial energisation date mismatches.

The process to manage reconnection service requests uses the queue management functionality in Velocity to queue all service requests, due or past due. The field services team then works these queues to ensure that all service requests are resolved.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.8<br>With: 17 Schedule 11.1<br><br>From: 01-Aug-16<br>To: 31-Jul-17 | Three ICPs taken to active for the incorrect date.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as moderate as the checks in place identify most, but not all potential errors.<br>The audit risk rating is low as the overall level of level of accuracy is 95% or higher. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| The incorrect active dates for the 3 ICPs identified have been corrected | Complete | Identified |

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|---|---|
| Existing monitoring does identify some instances of incorrect active dates entered due to human error however this will be refined to identify all instances where our active date does not match the IE and meter certification date. This will be included in the enhancements to our Registry discrepancy reporting mentioned in **section 2.1.** | June 2018 | |
| Personnel changes have also been made in this area which we anticipate will reduce the instances of human error when manually entering active dates. | Ongoing | |

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

**Code reference**

*Clause 19 Schedule 11.1*

**Code related audit information**

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

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

**Audit observation**

The 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 was 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 five ICPs at each inactive status (or less if there were not five) using the typical characteristics methodology were checked. The findings in relation to the timeliness of updates to registry is recorded in **Section 3.3**.

**Audit commentary**

Inactive - New Connection in progress

Analysis of the list file found no ICPs that have been at this status for greater than 24 months and identified 16 ICPs that had an initial energisation date recorded. These were examined and found ten of these have been changed to active since the list file was provided. The remaining six ICPs were examined during the site audit and found that they were all connected but hadn't been updated to active due to missing paperwork from the field. These would have been identified sooner if there was a check for population of the initial energisation as recommended in **Section 3.5**.

The timeliness of these updates to registry are discussed in **Section 3.3.**

Inactive Status (excluding new connection in progress)

The status of "Inactive" is only used once a Meridian approved contractor has confirmed that the ICP has been disconnected. Meridian's Velocity system only uses the "inactive vacant" code. Any ICPs switching into Meridian with the status "inactive - AMI remote disconnection" (1,7) are updated to active once re-connection has been confirmed. The check of the ICPs at this status in the list file confirmed this. The sample checked of all the other "inactive" statuses confirmed the status aligned between the registry and Velocity.

I found that ICPS recorded as "inactive - reconciled elsewhere" are single streetlight connections on the Orion network and are therefore recorded as separate ICPs, but in some instances when these sites are switching only the main ICP is being switched away and the unmetered load is being added to the main ICP. I have set out the details of my findings in the table below:

| ICP | Reconciled under ICP – Main ICP | Comments |
|---|---|---|
| 0005905583RN01D | 0005950937RNBFD | The main ICP has the UML recorded against it and the main ICP is vacant. |
| 0005906555RNE30 | 0005267315RNEAE | The UML load has been added to main ICP at this address and this ICP is active with Meridian. |
| 0005906873RN7E2 | 0005161533RND06 | The ICP #RND06 has no unmetered load recorded against it therefore the UML is not being reconciled elsewhere. The main ICP is with a different trader. This is recorded as non-compliance below. |
| 0005988896RN7F2 | 0005445124RN4FE | The UML load is recorded against ICP # RN4FE. This ICP is with a different trader. |
| 0006300324RNC8C | 0005635225RN9D9 | The UML load is recorded against ICP # RN9D9. This ICP is with a different trader. |

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.9<br>With: 19 Schedule 11.1<br><br>From: 01-Dec-15<br>To: 31-Jul-17 | One ICP at the incorrect status.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as strong as the processes to manage status are robust.<br>The audit risk rating is low only one ICP was found to be at the incorrect status and this was caused by another trader. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We are liaising with the Trader for ICP 0005161533RND06 to ensure the Registry is updated with the unmetered load relevant to 0005906873RN7E2. Previous discussions with this Trader indicated they were billing and settling this load. | Jan 2018 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| We will re-implement reporting to monitor ICPs with the IE date populated but paperwork not received to ensure ICPs are moved from Inactive-New Connection in Progress as soon as possible. This will be included in the enhancements to our Registry discrepancy reporting mentioned in **section 2.1.** | June 2018 | |

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

#### Code reference

*Clause 15 Schedule 11.1*

#### Code related audit information

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

#### Audit observation

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

### Audit commentary

As Meridian uses the status "inactive – new connection in progress" no ICPs were found in the list file in the new or ready status and they have not received any requests from Distributors.

### Audit outcome

Not applicable

## 3.11. Change of MEP (Clause 10.22(1)(a)(i))

### Code reference

*Clause 10.22(1)(a)(i)*

### Code related audit information

*If the MEP for an ICP which is not also an NSP changes, the trader must notify the registry of the gaining MEP in accordance with Part 11.*

### Audit observation

The process to manage a change of MEP on an existing ICP was examined. The timeliness of these being updated on the registry is recorded in **Section 3.3** above. The list file was examined to identify any active ICPs with no MEP recorded or with meter category nine recorded and the UML flag is "N".

### Audit commentary

HHR ICPs

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

NHH ICPs

MEP nominations for bulk roll outs are well managed with the affected ICPs identified in advance and the correct MEP is nominated in advance via a file. Meter moves and import/export meter changes are managed manually. The metering team have a matrix that is used to determine which MEP is to be nominated. There is discrepancy reporting in place to identify any mismatches between the registry and Velocity. AMS also provide Meridian with reporting for any ICPs where they have installed metering for Meridian but they haven't been nominated.

The list file contained 14 ICPs that have category 9 metering but the UML flag is "N". I checked all of these again prior to production of the draft audit report and found the following:

- Five are decommissioned or are ready for decommissioning.
- Three now have metering information populated by the MEP.
- Two have a new MEP nominated and the MEP has accepted. The registry is yet to be updated by the MEP.
- Two ICPs have metering recorded in Velocity. The meters are being read, billed and reconciled. The MEP registry record appears to be incorrect. I am unable to determine if the sites have certified metering installed as the metering is not recorded on the registry.

- The MEP had incorrectly removed the metering from the registry for ICP 0162225728LCADC. This has now been added back to the registry.
- As reported last year the metering is unable to be confirmed for ICP 0005965470RN796 because of access issues due to the earthquake.

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

**Audit observation**

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

**Audit commentary**

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 and the withdrawal process is used if the customer changes their mind. The ICPs checked confirmed that files all were sent within two days of all conditions being met.

**Audit outcome**

Compliant

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

**Code reference**

*Clauses 3 and 4 Schedule 11.3*

**Code related audit information**

*Within three business days after receipt of notification of a switch from the registry, 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 and a valid switch response code (clause 3(a)(i) and (ii) of Schedule 11.3); or*
- *providing a request for withdrawal of the switch in accordance with clause 17 (clause 3(c) of Schedule 11.3).*

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

**Audit observation**

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

The switch breach report was examined for the audit period.

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

**Audit commentary**

The check of the AN codes found all were correct.

The switch breach report was examined for the 12 month period from September 2016 to August 2017. All AN files were sent on time during the audit period.

This is managed by Meridian using business rules that are set within Velocity. The event detail report for the period 1/1/17 to 31/7/17 was examined and found 94% of the switches had an event date within five days or less and none were greater than ten days.

**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 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 (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 on the registry with accumulator of C and a settlement indicator of Y (clause 5(b)); and*
- *if a switch event meter reading is not a validated reading, provide the date of the last meter reading (clause 5(c)).*

**Audit observation**

An event detail report for the period from 1/1/17 to 31/7/17 was 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 five records. The content checked included:

- correct identification of meter readings and correct date of last meter reading
- accuracy of meter readings
- accuracy of average daily consumption (this is based on the most recent read to read consumption).

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

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

### Audit commentary

Meridian made a change to their billing system that caused transfer switches to be backdated to the last actual read date rather than last estimated date. This affected 176 switches between 15/4/17 and 3/5/17. Meridian contacted the traders effected and requested that these switches be withdrawn and re-requested to correct this as soon as the issue was identified.

The check of the CS file content found all the information was correct with the exception of:

- Two examples for ICP 0000000093CP952 & ICP 0000000996DEB88 that were closed on estimated reads and Velocity used the last read date of the estimated final bill date, rather than the last actual read date.
- ICP 0000001449DEDBC was sent with the incorrect read value. The last read date of 22/3/17 was correct but the read sent was from the customers last billed date.
- ICP 0000001349CP422 was sent with an incorrect average daily consumption value due to the manual closing of the account that reset the value to zero. This was human error and not a systematic issue.

The switch breach report confirmed that all CS files were sent on time.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 4.3<br>With: 5 Schedule 11.3<br><br>From: 01-Jan-17<br>To: 31-Jul-17 | CS file content incorrect.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Weak<br>Breach risk rating: 6 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Medium** | Controls are rated as weak as there were more errors found than found in the last audit, and the billing change that effected the accuracy of the CS file was not identified prior to deployment.<br>The billing change issue did affect a reasonable volume of ICPs hence the audit risk rating of medium. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| The system change that impacted CS files for transfer switches between 15/4/17 and 3/5/17 was backed out immediately upon discovery of the issue. Switches with impacted CS files were withdrawn so corrected CS files could be supplied. | Complete | Identified |
| A system fix went into our billing system in April 2017 to correct the previously identified issue of the incorrect last actual read date being included in the CS file. ICP 0000000093CP952 was a switch processed before this fix was implemented. ICP 0000000996DEB88 was a backdated switch. The last actual read we obtained was 12/06. The request to switch on 13/05 was received on 14/06 therefore last actual read date provided in the CS file was technically correct | April 2017 | Note: the last read date should be the last read during the during the period of supply hence non-compliance |
| A system fix was implemented on 25 November to resolve the issue with the CS file not picking up the latest actual reading where there is one available after our customers final bill date (ICP 0000001449DEDBC). | Nov 2017 | |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| As above – system changes have been implemented to resolve the issues identified with the CS file last actual read dates and switch event meter reads.<br>We will carry out an internal audit on a sample of CS files to ensure the changes are working as intended and the issues are resolved. | April 2018 | |

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

**Code reference**

*Clause 6(1) and 6A Schedule 11.3*

**Code related audit information**

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

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

- *the gaining trader may dispute the switch meter reading if the validated meter reading or permanent estimate provided by the losing trader differs by 200 kWh or more (clause 6(b)).*

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

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

**Audit observation**

The process for the management of read requests was examined.

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

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

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

**Audit commentary**

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

The sample checked for the read requests checked found that in some instances it was the losing trader requesting the read change. All examples checked had two supporting validated reads.

The switch breach report confirmed all RR requests were sent within the required timeframe.

**Audit outcome**

Compliant

### 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 on 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, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading.*

### Audit observation

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

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

### Audit commentary

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

The event detail report recorded 18 RR requests that were rejected within five days of the event date. The sample checked were all from Electric Kiwi. They are adding register values together and allocating multi register meters to one channel. This is incorrect and Meridian have correctly rejected these requests on the basis of not accepting misleading information.

The sample of accepted RR requests for AMI reads were checked and confirmed to be compliant.

### Audit outcome

Compliant

## 4.6. Disputes - standard switch (Clause 7 Schedule 11.3)

### Code reference

*Clause 7 Schedule 11.3*

### Code related audit information

*A losing trader or gaining trader may notify the other that it disputes a switch event meter reading, notified under clauses 1 to 6. Such a dispute must be resolved in accordance with clause 15.29 (with all necessary amendments).*

### Audit observation

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

### Audit commentary

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

### Audit outcome

Not applicable

## 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 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 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 sample of five ICPs using the typical sampling methodology were checked to confirm that these were notified to the registry within two business days.

### Audit commentary

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

### Audit outcome

Compliant

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

### Code reference

*Clause 10(1) Schedule 11.3*

### Code related audit information

*10(1) Within five business days after receipt of notification of the switch move from the registry, 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:*

- *confirmation of the switch event date; and*
- *a valid switch response code; and*
- *final information as required under clause 1; 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. Determine an event date that is not earlier than the gaining traders proposed date and that date can be no later than 10 business days after the date of the notification. Alternatively, the losing trader may provide a request for a withdrawal of the switch in accordance with clause 17.*

### Audit observation

An event detail report for the period from 1/1/17-31/7/17 was reviewed, to identify AN files issued by Meridian during the audit period. A sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied.

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

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

### Audit commentary

The switching team have a good understanding of the AN codes and the correct code was used for the sample checked.

The switch breach report confirmed that all AN files were sent on time during the audit period. It recorded eight late CS files and these were checked on the registry and none were found to be a breach.

### Audit outcome

Compliant

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

### Code reference

*Clause 10(2) Schedule 11.3 (2)*

### Code related audit information

*If the losing trader determines a different date, the losing trader must also complete the switch by providing to the registry 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

The setting of event dates for move switches was examined. The event detail report for the audit period was examined comparing the NT requested event date with the AN event date sent by Meridian for any switches dated earlier than the NT requested date for the 14,104 switch moves recorded. The report was also checked for any event dates that were set greater than ten days from the NT receipt date and a sample of ten checked using the typical sample methodology.

### Audit commentary

Analysis found none had a date set earlier than the gaining trader's requested event date and none had an event date set greater than ten business days from the NT receipt date.

### Audit outcome

Compliant

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

#### Code reference

*Clause 11 Schedule 11.3*

#### Code related audit information

*If the losing trader has provided information to the registry in accordance with clause 10(a), within three business days after the later of the actual event date or date of receipt of the switch request, the losing trader must:*

- *provide the event date (clause 11(a)); and*
- *provide the switch event meter reading as at the event date for each meter or data storage device noted on the registry (clause 11(b)); and*
- *if switch event meter reading is not a validated meter reading, provide the date of the last reading of the meter or storage device (clause (11(c)).*

#### Audit observation

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

- correct identification of meter readings and correct date of last meter reading
- accuracy of meter readings
- accuracy of average daily consumption (this is based on the most recent read to read consumption).

#### Audit commentary

The check of the CS file content found the information in the CS file was correct with the exception of:

- Three of the examples checked were sent with the incorrect last read date. This is the same issue as recorded in **Section 4.3**, that when an ICP is closed on an estimated read, Velocity uses the date of the estimated final bill date rather than the last actual read date.
- ICP 0000000668CE910 was sent with the incorrect actual reads and the incorrect last read date.
- ICP 0000000592DE68E was sent with a last read date after the period of supply had finished.

#### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 4.10<br>With: 11 Schedule 11.3<br><br>From: 01-Jan-17<br>To: 31-Jul-17 | CS file content incorrect.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Weak<br>Breach risk rating: 3 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as weak as there were errors found in all CS files checked.<br>The audit risk rating is low as only one out of the five errors found has a direct impact on the accuracy of submission. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| A system fix went into our billing system in April 2017 to correct the previously identified issue of the incorrect last actual read date being included in the CS file. The 3 ICPs where this issue was identified were switches that were processed before this date. | April 2017 | Identified |
| A system fix was implemented on 25 November to resolve the issue with the CS file not picking up the latest actual reading where there is one available after our customers final bill date. A read change was completed after the switch for ICP 0000000668CE910. | Nov 2017 | |
| 0000000592DE68E – A backdated switch request was received on 20/04 for a switch date of 10/04. We had received a vacant property read on 13/04 so the last actual read date provided in the CS file was technically correct although this was after the switch event date. | N/A | Note: the last read date should be the last read during the during the period of supply hence non-compliance |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| As above | | |

### 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 notify the losing trader of the switch event meter reading and the actual event date to which it refers as follows:*

- *if the switch meter reading established by the gaining trader differs by less than 200 kWh from that provided by the losing trader, both traders must use the switch event meter reading provided by the gaining trader (clause 12(2)(a)); or*
- *if the switch event meter reading provided by the losing trader differs by 200 kWh or more from a value established by the gaining trader, the gaining trader may dispute the switch meter reading. In this case, the gaining trader, within 4 calendar months of the actual event date, must provide to the losing trader a changed validated meter reading or a permanent estimate supported by 2 validated meter readings and the losing trader must either (clause 12(2)(b) and clause 12(3)):*
- *notify 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 on 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 5 business days after receiving final information from the registry, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading (clause 12(2B)).*

#### Audit observation

The process for the management of read requests was examined.

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

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

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

#### Audit commentary

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

The sample checked for the read requests found that in some instances it was the losing trader requesting the read change. All examples checked had two supporting reads. I found three ICPs where one of the supporting reads was based on a customer photo read. These were checked and found that the customer read could not be validated against a set of validated reads and therefore cannot be treated as a validated read for the purposes of a read change request. Meridian were of the understanding that a photo read could be used as a validated read provided it had been validated against one other validated read that had not been provided by the customer. This process was changed as soon as they became aware that this is not the case. This is recorded as non-compliance below.

The switch breach report confirmed all RR requests were sent within the required timeframe.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 4.11<br>With: 12 Schedule 11.3<br><br>From: 01-Jan-17<br>To: 01-May-17 | Three read change requests sent without 2 validated meter readings.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as strong as Meridian had two reads but were under the understanding that a photo read could be used as a validated read. This process was changed as soon as they became aware of this.<br>The audit risk rating is low the effect on submission in relation to this is negligible and Meridian no longer accept customer photo reads as actuals. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| As reported, we have stopped using customer reads when requesting switch event meter read changes. | Complete | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| | | |

### 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 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 to trade electricity through or assume responsibility for:*

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

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

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

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

*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, 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, if:*

*14(4)(a) – the proposed event date is in the same month as the date on which the gaining trader advised the registry; 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 and this date is agreed between the losing and gaining traders.*

#### Audit observation

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

#### Audit commentary

The HHR customers are managed within Velocity, but Velocity doesn't write to the registry automatically for this switch type. Registry notifications are manual.

The sample checked confirmed that all NT files were sent within three business days.

#### Audit outcome

Compliant

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

**Code reference**

*Clause 15 Schedule 11.3*

**Code related audit information**

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

*15(a) - provide to the registry a valid switch response code as approved by the Authority; or*

*15(b) - provide a request for withdrawal of the switch in accordance with clause 17.*

**Audit observation**

The HHR switch process was examined and the event detail report and switch breach report were analysed to identify all HHR switch files sent during the audit period. The switch breach report recorded no breaches.

**Audit commentary**

The NT is received from the registry via Velocity. Once the file is received the process is managed manually due to the liaison required across the organisation. All AN files were sent within three business days of the NT being received.

**Audit outcome**

Compliant

### 4.14. Gaining trader to notify registry - gaining trader switch (Clause 16 Schedule 11.3)

**Code reference**

*Clause 16 Schedule 11.3*

**Code related audit information**

*The gaining trader must complete the switch no later than 3 business days, after receiving the valid switch response code, by advising the registry of the event date.*

*If the ICP is being de-energised 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 de-energised 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 de-energised or removed, advise the losing trader of the results and metering component numbers for each data channel in the metering installation.*

**Audit observation**

The HHR switching process was examined and the switch breach report was analysed.

**Audit commentary**

The HHR switching process is manual. These are managed closely and include a check for metering compliance. All CS files were sent on time during the audit period.

**Audit outcome**

Compliant

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

**Code reference**

*Clauses 17 and 18 Schedule 11.3*

**Code related audit information**

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

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

- *for each ICP, the trader withdrawing the switch request must provide the registry 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 a notification from the registry of a switch, the trader receiving the withdrawal must notify the registry 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 notification from the registry, in accordance with clause 18(d), a trader may re-submit the switch withdrawal request for an ICP in accordance with clause 18(c). All switch withdrawal requests must be resolved within 10 business days after the date of the initial switch withdrawal request (clause 18(e))*
- *if the trader requests that a switch request be withdrawn, and the resolution of that switch withdrawal request results in the switch proceeding, within two business days after receipt of notification from the registry in accordance with clause 22(b), the losing trader must comply with clauses 3,5,10 and 11 (whichever is appropriate) and the gaining trader must comply with clause 16 (clause 18(f)).*

**Audit observation**

The switch withdrawal process was examined. The content of a sample of two ICPs for each withdrawal code from the event detail report were checked using the typical sampling methodology. A sample of five switch rejections were checked using the typical sample methodology. The event detail report was also analysed to confirm timeliness of switch withdrawal requests, as this is not currently being identified in the switch breach report. This identified 76 ICPs of 2,924 withdrawal requests that were backdated greater than two months from the event date. A sample of ten of these were checked using the diverse case methodology.

**Audit commentary**

These are managed manually except for any transfer switch requests received on finalised accounts. For these Velocity automatically sends a withdrawal request for the wrong switch type request.

The content of five NW files was compared to Velocity details and in all cases; the withdrawal reason provided by Meridian was accurate.

**Audit outcome**

Compliant

### 4.16. Metering information (Clause 21 Schedule 11.3)

**Code reference**

*Clause 21 Schedule 11.3*

**Code related audit information**

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

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

**Audit observation**

The meter reading process in relation to meter reads for switching purposes was examined. Examples to confirm this procedure have been examined as part of the sending of final information for switches and read requests made.

**Audit commentary**

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

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

**Audit outcome**

Compliant

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

**Code reference**

*Clause 11.15AA to 11.15AB*

**Code related audit information**

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

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

> *11.15AB(4)(a)- making a counter offer to the customer; or*
>
> *11.15AB(4)(b)- offering an enticement to the customer.*

**Audit observation**

The Electricity Registry switch save protected retailer list was examined to confirm that Meridian is not a save protected retailer.

Winback processes were examined to determine whether they are compliant.

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

### Audit commentary

Meridian is not a switch save protected retailer. All switch protected retailers are excluded from the retention team until such time as the switch has completed. The EDA file was examined and found two withdrawn switches prior to the event date for Trustpower who are a switch save protected retailer. These were checked and found that Trustpower hadn't been identified as switch save protected and therefore these switches had been saved prior to the switch completing. These were the only two ICPs identified for the period 1/1/17-31/7/17. Trustpower have since been added to the protected trader group and are now correctly excluded.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 4.17<br>With: 11.15AA to 11.15AB<br><br>From: 14-Jun-17<br>To: 19-Jun-17 | Two switch save protected ICPs saved prior to the switch completing.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as moderate as one trader was missed from the excluded traders.<br>The audit risk rating is low as only two ICPs were affected over a seven month period. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| A change was made to our customer retention reporting to include ICPs in the process of switching to Trustpower where a contract break fee was applicable, so these customers could be contacted to advise of this. These ICPs were supposed to have been flagged so that only the break fees were discussed however, due to a breakdown in communication, this did not occur resulting in retention conversations occurring with the customers for these ICPs. The switch withdrawals we initiated for the both the ICPs identified were rejected and the switches proceeded to complete. | Complete | Identified |

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|---|---|
| All switch save protected retailers are now excluded from our customer retention reporting while switches are in progress. Changes to the list of save protected retailers is monitored closely so that updates to reporting are made as required. | Complete | |
| A more thorough change control process has been implemented for any future changes to our retention reporting. | Ongoing | |

## 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 notify 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 notify 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 notify the registry 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 notify 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 notify the distributor of the change. The amount of electricity attributable to that ICP becomes UFE.*

**Audit observation**

The registry list was reviewed and found Meridian has 186 ICPs with shared unmetered load.

I reviewed the processes to identify shared unmetered load.

**Audit commentary**

ICPs that switch in with shared unmetered load create a job queue and each of these are checked to confirm they are accurate as they switch in. This is also checked regularly as part of the registry discrepancy process to capture any changes on existing ICPs. The analysis found that all ICPs had the correct load and the UML flag "Y".

**Audit outcome**

Compliant

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

### Code reference

*Clause 10.14 (2)(b)*

### Code related audit information

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

### Audit observation

Examination of the Meridian list file found 3,063 active ICPs have unmetered load recorded, excluding those with shared unmetered load. 98 of these have a UML load that indicates it is DUML managed by a database. These are discussed in **Section 5.4**. One ICP was found that that exceeds 6,000 kWh. This is recorded as non-compliance in **Section 5.3**. 17 ICPs were identified as having a load of between 3-6,000 kWh. These were all examined.

### Audit commentary

Of the 17 ICPs with a load recorded between 3-6,000 kWh. 14 ICPs have an approved load type detailed in the registry. The remaining three ICPs were examined and found that these were all of an approved load type and Meridian is working with the Distributor to update the registry with the load details.

### 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 MEP proposes to take or is taking to reduce the unmetered load.*

### Audit observation

Examination of the Meridian list file found 11 ICPs with a load that exceeded the 6,000 kWh threshold. 4 of these have since been resolved. The process to manage UML loads was examined.

### Audit commentary

Meridian have robust controls in place to manage ICP unmetered loads. They have resolved 12 of the 14 ICPs identified in the last audit (and these are included in the list below). The ICPs identified this audit period are detailed below.

| ICP | Annual consumption | Auditor Comments | Meridian Update |
|---|---|---|---|
| 1001100701UN33B | 50,060 | Cleared | Individual ICPs have been created for these items of load. This ICP is now decommissioned. |
| 0000100128UNCCF | 70,299 | Cleared | Individual ICPs have been created for these items of load. This ICP is now decommissioned. |
| 1001100702UNFFB | 10,888 | Cleared | Individual ICPs have been created for these items of load. This ICP is now decommissioned. |
| 1001100700UNF7E | 34,084 | Cleared | Individual ICPs have been created for these items of load. This ICP is now decommissioned. |
| 0007181925RNA27 | 13,140 | Meridian are investigating this load. | UML calculation has been queried with network. Do not believe 24hrs is correct for this type of load |
| 0000100115UN46C | 6,023 | Meridian are investigating this load. | Investigation is in progress to confirm size of DUML |
| 0006947042RNDAC | 8,333 | Meridian are investigating this load. | Investigation is in progress to confirm size of DUML |
| 1000566367PCBBD | 10,585 | Meridian are investigating this load. | Open job to have metering installed |
| 0006300022RNE00 | 7,577 | Meridian are investigating this load. | Investigating as DUML audit found lights are de-energised. Liaising with network and customer to confirm status. |
| 0000916610TEA3F | 6,132 | Meridian are investigating this load. | Investigation in progress to confirm size of DUML |
| 1001145181UNCC2 | 8,585 | Meridian are investigating this load. | UML calculation has been queried with network. Do not believe 24hrs is correct for this type of load |

### Audit outcome

Non-compliant

| Non-compliance | Description | | |
|---|---|---|---|
| Audit Ref: 5.3<br>With: 10.14 (5)<br><br>From: 01-Aug-17<br>To: 31-Jul-17 | Seven ICP with annual consumption over 6,000 kWh.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple<br>Controls: Strong<br>Breach risk rating: 1 | | |
| **Audit risk rating** | **Rationale for audit risk rating** | | |
| **Low** | Controls are rated as strong any ICPs falling into this category are identified and resolved. This is evident with the year on year reduction of these ICPs.<br>The audit risk rating is low as only seven ICPs exceeds the threshold and these are in the process of being resolved. | | |
| **Actions taken to resolve the issue** | | **Completion date** | **Remedial action status** |
| We will continue to report on and progress resolution of these ICPs. Of the 14 ICPs on last year's report only 2 remain unresolved. | | Ongoing | Identified |
| **Preventative actions taken to ensure no further issues will occur** | | **Completion date** | |
| We will continue to report on and progress resolution of these ICPs. Of the 14 ICPs on last year's report only 2 remain unresolved. | | 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 a number of distributed unmetered load databases. All those due before the audit regime changed were audited by Veritek during the audit period.

### Audit commentary

The table below records the audit findings for all streetlight audits undertaken under the old audit regime. All those undertaken under the new regime will be submitted as separate audits under their own regime. The processes for preparing submission information are compliant.

| | | Compliance Achieved (Yes/No) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Database | Last audit 11(5) of schedule 15.3 | 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) of schedule 15.3 | Capacity of load 11(2)(d) of schedule 15.3 | Tracking of load changes 11(3) of schedule 15.3 | Audit trail 11(4) of schedule 15.3 |
| Gore DC & The Power Co Ltd | 28/3/2017 | No | Yes | No | No | No | No | Yes |
| Jacks Point | 29/3/17 | No | Yes | Yes | Yes | Yes | No | Yes |
| Hurunui DC | In progress under new regime | | | | | | | |
| Selwyn DC | 26/04/17 | Yes | Yes | Yes | Yes | Yes | No | Yes |
| Scanpower- community lights | In progress under new regime | | | | | | | |
| Porirua City Council | In progress under new regime | | | | | | | |
| Auckland Transport | 18/4/17 | No | No | Yes | No | No | No | Yes |
| Kaikoura DC | In progress under new regime | | | | | | | |
| Far North DC | In progress under new regime | | | | | | | |
| Manawatu DC | In progress under new regime | | | | | | | |
| Buller DC | In progress under new regime | | | | | | | |
| NZTA Chch | 26/4/17 | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| NZTA Kaitoke | In progress under new regime | | | | | | | |
| NZTA Waipukarau | In progress under new regime | | | | | | | |

| Database | Last audit 11(5) of schedule 15.3 | 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) of schedule 15.3 | Capacity of load 11(2)(d) of schedule 15.3 | Tracking of load changes 11(3) of schedule 15.3 | Audit trail 11(4) of schedule 15.3 |
|---|---|---|---|---|---|---|---|---|
| NZTA –Scanpower area | In progress under new regime | | | | | | | |
| WCC Traffic Lights | In progress under new regime | | | | | | | |
| Waterloo Park | In progress under new regime | | | | | | | |
| Palmerston North City Council | In progress under new regime | | | | | | | |
| Southland DC | 22-24/3/17 | No | Yes | No | Yes | Yes | No | Yes |

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 5.4<br>With: 11 Schedule 15.3, Clause 15.37B<br><br>From: 01-Aug-16<br>To: 31-Jul-17 | Distributed unmetered databases not accurate.<br>Potential impact: High<br>Actual impact: High<br>Audit history: Multiple<br>Controls: Moderate<br>Breach risk rating: 6 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **High** | Controls are rated as moderate as Meridian are actively working with the DUML databases owner to improve database processes and accuracy but cannot force change with the database owners.<br>The audit risk rating is rated as high as there an estimated under submission of 405,246 kWh for those databases audited under the old regime, where it can be calculated. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We are continuing to work with database holders to resolve the issues identified by individual DUML database audits. Specific actions taken will be detailed and submitted in individual DUML audit reports undertaken under the new regime. | May 2018 | Identified |
| We have identified the issue related to the estimated under submission (which was for a single database) and are in the process of revising historic submission information to correct this. | Dec 2018 | |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Approval of any customer request for the creation of new DUML will be conditional on evidence that an accurate database with robust maintenance processes exists. | Ongoing | |

## 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 15.13*

**Code related audit information**

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

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

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

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

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

**Audit observation**

The registry list was examined to determine whether any ICPs with generation were supplied during the audit period. Processes for distributed generation were reviewed.

**Audit commentary**

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

Meridian's list file was examined and 3,929 active ICPs were found with generation listed by the Distributor. 3,864 have an injection channel recorded on the registry, and Meridian has generation capacity recorded for 3,856 of these (99.8%).

65 ICPs have generation capacity listed by the distributor, but do not have an injection channel recorded on the registry, although an injection channel may be present. Population of the registry is an MEP issue and not the responsibility of the retailer.

- For 13 of the 65, Meridian has generation capacity recorded. I confirmed that generation metering was installed in Velocity for 12 of these, and the other has recently had non-compliant metering replaced.
- I checked a sample of 10 ICPs where the distributor has generation capacity recorded, but Meridian did not. In nine cases there is no generation installed and the distributor has updated the registry early. In one case the customer does have generation installed but wanted to gift the energy, and did not require a generation meter.

Eight ICPs with injection channels are recorded with the profile RPS. All were checked and confirmed to be timing differences; generation profiles are now listed on the registry.

The profiles of EG and PV were checked, to determine whether they had been applied correctly based on the fuel type. 14 ICPs had wind or water indicated, and were recorded with the PV profile. A sample of 10 ICPs were checked and all have now been corrected to profile EG1; correct profiles will flow through to wash up submissions.

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, Meridian's contracts with service providers specify that they must return within one to two business days to unbridge the meter.

Meridian provided four examples of bridged meters during the audit period. The existence of bridged meters is recorded as non-compliance below. Three examples were identified by the MEP when the meters were replaced, and one was identified by Meridian on reconnection when the site switched in. Corrections were processed for all the affected meters by entering an estimated closing read in Velocity to capture the bridged consumption. This is discussed further in **section 8.1**.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 6.1<br>With: Clause 10.13<br><br>From: entire audit period | While meters were bridged, energy was not metered and quantified according to the code for four ICPs.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as strong as they are sufficient to reduce the risk most of the time.<br>Bridging only occurs where a soft reconnection cannot be performed after hours and the customer urgently requires their energy supply for health and safety reasons. Contractors are required to return within one to two business days to unbridge the meters. In all examples reviewed, corrections had been processed. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| The 3 examples identified by the MEP when the meter was replaced were already known to us and were being actively managed as part of our Pre Pay replacement project. | | Identified |
| We will continue to correct historic consumption where meters are bridged. | Ongoing | |

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|---|---|
| As reported, bridging of meters is only undertaken as a last resort, where it is considered necessary for safety reasons. It is likely there will be need for this practice to continue. We consider that Code changes to improve visibility where meter bypass has occurred would be beneficial to the industry and we understand this is being looked at as part of the Part 10 review. | N/A | |

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

#### Code reference

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

#### Code related audit information

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

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

*The participant responsible for the metering installation must:*

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

#### Audit observation

The NSP table was reviewed to confirm the GIPs which 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 | 31/08/2019 |
| MERI | BENMORE | BEN2202MERIGG | MERG | 24/05/2019 |
| MERI | MANAPOURI | MAN2201MERIGG | MERG | 3/02/2019 |
| MERI | OHAU A | OHA2201MERIGG | MERG | 8/07/2018 |
| MERI | OHAU B | OHB2201MERIGG | MERG | 6/07/2019 |
| MERI | OHAU C | OHC2201MERIGG | MERG | 14/06/2019 |
| MERI | WOODVILLE | WDV1101MERIGG | MERG | 30/08/2019 |
| MERI | WAITAKI | WTK0111MERIGG | MERG | 19/11/2017 |
| MERI | WESTWIND | WWD1102MERIGG | MERG | 18/08/2020 |
| MERI | WESTWIND | WWD1103MERIGG | MERG | 18/08/2020 |

All metering installations have current certification.

Meridian has not modified or installed any new metering installations during the audit period. Some installations have been recertified, but the design was not altered.

**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.

Registry list for Meridian was reviewed to confirm the profiles used during the audit period.

For 742 ICPs with profiles requiring control device certification, the meter certification details on the event detail report were checked against the profile.

### Audit commentary

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
- 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. 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 | No Description | Yes |
| E11 | Initial Profile Load | Yes |
| E13 | Ripple Switched Night + | Yes |
| T07 | Initial Profile Load | Yes |
| T23 | Initial Profile Load | Yes |
| TOC | Initial Profile Load | Yes |
| TON | Initial Profile Load | Yes |

All ICPs using the POD, PON, PTM, WDO, WDP and WEN profiles have AMI meters installed.

I checked certification details for 742 ICPs which required control device certification. This review identified three ICPs where the metering installation was final certified, but the control device was uncertified and the AMI flag was not Y:

- 0000440280WP747 has profiles RPS T07 T23 from 16/05/2017 to 19/09/2017, and T07 T23 from 20/09/2017
- 0001819752TP229 has profiles RPS E08 from 03/05/2017
- 0000320408TP743 had profiles RPS T07 T23 from 03/06/2016, but was returned to RPS effective from 04/09/2017.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 6.3<br>With: Clause 33 Schedule 10.7 and clause 2(2) Schedule 15.3<br><br>From: entire audit period | Three ICPs had a profile requiring control device certification without a certified control device or an AMI meter installed.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Strong<br>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. Only three out of 742 ICPs checked (0.4%) were found to have an incorrect profile, and one of those was corrected prior to the audit.<br>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 |
|---|---|---|
| Profiles for the 3 ICPs identified have been corrected to RPS. | Sept 2017 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| An adjustment has been made to our profile selection tool to ensure control device certification status is 'Y' before recommending a control device dependent profile for an ICP. | Oct 2017 | |

### 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.

A sample of eight possible defective meters were identified:

- The MEP identified a stopped meter during meter replacement for one ICP, and a time drift for another ICP and advised Meridian
- The gaining retailer identified a stopped meter for a former Meridian ICP, and reported it to the MEP and Meridian
- In the other five cases, Meridian identified the issue and raised a fault with the MEP.

Four of the eight possible meter defects did not require correction as they related to temporary communications issues, or minor time drift. Corrections were appropriately processed for two of the faulty meters, and a correction for 0007152882RN847 is in progress. A correction for 000511127NRD5B has not been processed. This is recorded as non-compliance in **section 8.1**.

### 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 on the registry.*
>
> *2(4) - The reconciliation participant must interrogate the meter at least once every maximum interrogation cycle.*
>
> *2(5) - When electronically interrogating the meter the participant must:*
>
> *a) ensure the system is to within +/- 5 seconds of NZST or NZDST*
> *b) compare the meter time to the system time*
> *c) determine the time error of the metering installation*
> *d) if the error is less than the maximum permitted error, correct the meter's clock*
> *e) if the time error is greater than the maximum permitted error then:*
> *i) correct the metering installation's clock*
> *ii) compare the metering installation's time with the system time*
> *iii) correct any affected raw meter data.*
> *f) download the event log.*

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

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

### Audit observation

The data collection process was examined.

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

Manual NHH data has been provided by Datacol, Delta and Wells via SFTP. NHH AMI data has been provided by Arc, Metrix (for Metrix and Counties Power meters) and AMS (for AMS and Smartco meters) via SFTP. I traced a sample of reads for 35 NHH ICPs from the source files to Velocity.

I matched the generation data received by Stark to the data received from SCADA for the first ten 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**

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

I traced a sample of reads for 35 ICPs from the source files to Velocity. Reads for 34 ICPs were recorded and labelled correctly, but one ICP had its actual reads replaced with estimates when they were valid. This is recorded as non-compliance in **section 9.1**.

**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 the first ten 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. This ensures that the metering information is obtained within the maximum interrogation cycle, as metering issues are identified and acted upon quickly.

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. Clock synchronisation is discussed further in **section 7.4**.

### Audit outcome

Compliant

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

### Code reference

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

### Code related audit information

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

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

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

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

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

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

### Audit observation

The data collection process was examined. I traced reads for a sample of 15 manually read NHH ICPs from the source files to Velocity.

Processes to provide meter condition information were reviewed as part of Datacol, Delta, and Wells' agent audits. Meridian's processes to manage meter condition information were reviewed.

Processes for customer and photo reads were reviewed.

### Audit commentary

I traced reads for a sample of 15 manually read ICPs from the source files to Velocity. Reads for 14 ICPs were recorded and labelled correctly. Non-compliance is recorded in **section 9.1** for incorrect labelling of the readings for one ICP.

Datacol, Delta, and Wells provide customer readings in the notes field, and record a no read. I checked an example in Velocity, and noted that the normal no read process was followed. A system estimate is generated for billing, and forward estimate is created for reconciliation.

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 not treated as actual by the historic estimate process.

Datacol, Delta, and Wells provide meter condition information with their daily read files, which is imported into Velocity. Based on the condition code, it is automatically directed to a work queue. Work queues are cleared by each team daily. I viewed the work queues and meter condition reporting procedural documentation which sets out action to be taken to resolve these issues.

- meter register issues, including a different meter being present, or meter being removed are sent to the metering team
- seals with signs of tampering and/or damage are sent to the metering team for a service order to be raised
- phase failure is sent to the metering team - no examples of phase failure were available for review
- unsafe installations are sent to the safety management team for action
- property information is sent to the billing team.

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 request, and directed to a work queue for action. I observed this process during the audit.

During the 2016 audit, non-compliance was recorded because Datacol and Delta were not reporting phase failure on CT metered installations. Datacol still does not complete checks for phase failure; this is recorded as non-compliance below. Delta and Wells' 2017 audits confirmed that they do check for phase failure, but no examples were available for review during the audit.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 6.6<br>With: Clause 5 of Schedule 15.2<br><br>From: entire audit period | Datacol does not identify and report phase failure to Meridian.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Once previously<br>Controls: Strong<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as strong as Meridian ceased using Datacol as a meter reading provider from 01/10/2017.<br>Wells and Delta do report phase failure to Meridian, therefore the audit risk rating is low. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We now use Wells exclusively for manual NHH data collection. | Oct 2017 | Cleared |

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|---|---|
| As above | | |

## 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 timestamping.

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

- I traced AMI reads to Velocity for a sample of 20 ICPs. All were timestamped at midnight, apart from Arc meters, which had timestamps throughout the day.
- I traced manual NHH reads to Velocity for a sample of 15 ICPs. 14 were recorded correctly with their read date and time. Readings for one ICP were recorded as estimates, this is recorded as non-compliance in **section 9.1**.

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**.

### 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

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. 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 Datacol, Delta, or 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
- 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 the actions appear reasonable, and aid compliance with the best endeavours requirements. Queues are cleared daily and I noted 90 items on the missing read queues on 19/09/2017.

Account managed sites are not subject to this process; no reads are managed by the account managers. A weekly report of no reads is produced for each account manager and sent to them for action. Progress on these is reviewed by management monthly. I note that some account managed sites have very difficult locations such as remote rail signal crossings, cross country ski fields, and cell sites.

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 Metrix 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, Smartco is currently working to resolve communication issues for groups of ICPs with critical mesh issues
- 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 for Smartco, Arc, and AMS. Metrix plan to provide this information in the future. Meridian has asked the MEPs to provide this information in a consistent format, so it can be imported into their systems and directed to work queues appropriately.

Billing management reports on no reads weekly, and have initiated 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 may not ensure that a read is obtained or the best endeavours requirement is met where the period of supply is short.

A report of ICPs not read during the period of supply was provided as at 31/07/2017. 66 ICPs were not read during the period of supply. Of these, 50 (76%) were supplied for less than 90 days. I reviewed a sample of 10 ICPs which had been supplied by Meridian for more than 90 days and found:

- four had been builder's temporary supplies and switched out within three weeks of a meter being installed; exceptional circumstances existed
- in one case, access was prevented due to severe flooding, Meridian met the best endeavours requirement, and exceptional circumstances existed
- in one case, an AMI meter was not communicating because it was switched off, and the best endeavours requirement was met
- in the remaining four cases, reads were not obtained due to a locked meter cupboard or lift, an AMI read could not be obtained, or a meter could not be located; the best endeavours requirement was not met for these ICPs.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 6.8<br>With: Clause 7(1) and (2) Schedule 15.2<br><br>From: entire audit period | Some ICPs were not read during the period of supply.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Three times previously<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as strong because they will mitigate the risk to an acceptable level, but ICPs may remain unread and the best endeavours requirement may not be met where ICPs are supplied for a short period.<br>The impact is assessed as low because in over half the cases reviewed, exceptional circumstances existed, and/or the best endeavours requirement had been met. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| As reported, we have robust processes in place to identify and take action where actual reads are not being obtained and this will continue to be a priority for us. Despite this there will continue to be ICPs that switch away before the best endeavours requirement can be met due to time restrictions.<br>Of the 4 ICPs identified where best endeavours had not been met, there was only 1 where our no read processes had not been initiated. For the remaining 3 our process had been initiated however the ICPs switched away before further action could be taken. | Ongoing | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| As above | | |

### 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 meter reading frequency reports for the months of March to May 2017 were provided.

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

### Audit commentary

The monthly meter reading reports provided were reviewed.

| Month | Total NSPs where ICPs were supplied > 12 months | NSPs <100% read | ICPs unread for 12 months | Overall percentage read |
|---|---|---|---|---|
| Mar 2017 | 331 | 137 | 967 | 99.55% |
| April 2017 | 331 | 134 | 935 | 99.54% |
| May 2017 | 333 | 127 | 832 | 99.61% |

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

Meridian provided an interrogation detail report as at 16/08/2017, which recorded 781 ICPs where a reading had not been obtained for the previous 12 months. Of these, 698 (89%) are manually read sites, and 83 (11%) are remotely read. This is a significant improvement since the last audit, where 1359 ICPs were unread for more than 12 months, and 723 of those had AMI meters.

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

- In two cases, the main power supply is off, so the AMI meter cannot communicate. These ICPs are being monitored by revenue assurance, and exceptional circumstances exist.
- In six cases, the best endeavours requirement was met and Meridian is working with the customer to replace their meters with AMI meters. For two of these, remedial work has been required, delaying the installation.
- In two cases, Meridian has been advised that the site is, or will be demolished. Meridian is working with the customer and field services providers to decommission these ICPs, the best endeavours requirement has been met, and exceptional circumstances exist.

### Audit outcome

Compliant

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

### Code reference

*Clause 9(1) and (2) Schedule 15.2*

### Code related audit information

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

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

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

### Audit observation

The meter reading process was examined. Monthly meter reading frequency reports for the months of March to May 2017 were provided.

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

### Audit commentary

The monthly meter reading reports provided were reviewed.

| Month | Total NSPs where ICPs were supplied > 4 months | NSPs <90% read | ICPs unread for 4 months | Overall percentage read |
|---|---|---|---|---|
| Mar 2017 | 331 | 12 | 2812 | 98.69% |
| April 2017 | 331 | 10 | 2723 | 98.73% |
| May 2017 | 333 | 8 | 2515 | 98.83% |

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

I reviewed 13 ICPs not read in the previous four months determine whether exceptional circumstances exist, and if Meridian had used their best endeavours to obtain readings.

- In one case, a dangerous dog was present and the best endeavours requirement was met. Meridian has now obtained actual readings.
- One backdated customer application prevented a read being obtained in the first four months; exceptional circumstances existed.
- For one ICP a metering issue prevented a read being obtained within the first four months; this issue has now been resolved and exceptional circumstances existed.
- One AMI meter which was not communicating has been moved to a manual round, and reads are now being obtained. The best endeavours requirement was met.
- In three cases the business had closed, and exceptional circumstances existed. For one of these ICPs reads have now been obtained.
- For three ICPs, meters were very remote, and the smart meters were not communicating. Meridian has attempted to resolve these communication issues using best endeavours, and reads are now being provided for one of the ICPs.
- For one account managed ICP, Meridian is working to replace the meter. This is due to be completed shortly, and the best endeavours requirement has been met.
- In one case the meter could not be accessed due to severe flooding, and exceptional circumstances existed.
- For ICP 0000171528TR10F a key was not working, and the customer was contacted once. This did not meet the best endeavours requirement and is recorded as non-compliance below.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 6.10<br>With: Clause 9(1) and (2) Schedule 15.2<br><br>From: entire audit period | For one ICP with no actual read in the previous 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as strong as they mitigate risk to an acceptable level.<br>One case was identified where exceptional circumstances could not be confirmed, as there was insufficient evidence that the best endeavours requirement was met. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We have been in contact again with our customer for 0000171528TR10F regarding access to the meter. Permanent estimates have been entered at 12 months for this ICP so that any correction to volumes, once a read is obtained, will be included within the wash up period. | Feb 2018 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| As reported, we have robust processes in place to identify and take action where actual reads are not being obtained and this will continue to be a priority for us. | Ongoing | |
| In addition we have recently implemented improved reporting, process and KPI's for long term unread ICPs where the customer is account managed. This group of ICPs make up around 1/3 of our occupied long term unread ICPs. | Ongoing | |

## 6.11. NHH meter interrogation log (Clause 10 Schedule 15.2)

### Code reference

*Clause 10 Schedule 15.2*

### Code related audit information

*The following information must be logged as the result of each interrogation of the NHH metering:*

*10(a) - the means to establish the identity of the individual meter reader*

*10(b) - the ICP identifier of the ICP, and the meter and register identification*

*10(c) - the method being used for the interrogation and the device ID of equipment being used for interrogation of the meter*

*10(d) - the date and time of the meter interrogation.*

### Audit observation

NHH data is collected by

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

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

### Audit commentary

Compliance with this clause has been demonstrated by Datacol, Delta, 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 interrogate 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.

**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
- 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. The event information is analysed and appropriate action is taken in accordance with the code.

### Audit outcome

Compliant

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

### Code reference

*Clause 11(3) Schedule 15.2*

### Code related audit information

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

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

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

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

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

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

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

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

### Audit observation

**HHR**

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
- 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. Generation data received by Stark was reviewed for one day for five generation station meters to confirm trading period duration.

### 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 7.4**.

Review of generation station meter data in Stark confirmed that trading period duration is 30 minutes.

### Audit outcome

Compliant

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

### Code reference

*Clause 18 Schedule 15.2*

### Code related audit information

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

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

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

### Audit observation

Processes to archive and store raw meter data were reviewed. Raw meter data from 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 35 NHH metered ICPs from the source files to Velocity. I matched the generation data received by Stark to the data received from SCADA for the first ten half hours of a day for five generation station meters.

### Audit commentary

**HHR**

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

**NHH**

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

I reviewed NHH meter read data in Velocity from 2005 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 35 ICPs from the source files to Velocity for NHH meters. The readings were the same for 34 ICPs, confirming the security of the process. Readings for one ICP had been replaced, this is recorded as non-compliance in **section 9.1**.

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.

**Generation**

I reviewed Stark meter data from 2012, 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 the first ten half hours of a day for five generation station meters. In all cases 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.

### 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

## 7.4. Data Storage Device Clock Synchronisation (Clause 2(5)&(6) of Schedule 15.2)

### Code reference

*Clause 2(5)&(6) of Schedule 15.2*

### Code related audit information

*When electronically interrogating the meter the participant must ensure that the clock is synchronised and correct the clock and raw data where necessary.*

### Audit observation

I reviewed clock synchronisation event information received, and action taken as a result.

**HHR**

HHR data is collected by EMS, and clock synchronisation processes were reviewed as part of their agent audit.

**AMI**

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

**Generation**

Meridian collects generation information and is responsible for clock synchronisation.

### Audit commentary

**HHR**

Processes for clock synchronisation were reviewed as part of EMS' agent audit, and found to be compliant.

**AMI**

Compliance with this clause has been demonstrated by MEPs as part of their own audits. I saw evidence that clock synchronisation information is emailed to Meridian weekly by AMS. No action was required for the examples reviewed.

**Generation**

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

During interrogation, a comparison occurs between data logger and Stark clocks and time is corrected automatically for all differences below five seconds. If the clocks are different by more than five seconds, the clock is adjusted manually. Clock time differences over five seconds occur rarely, and are mainly due to meter changes or situations where metering installations may have been out of commission for a period. Differences of over five seconds are investigated and corrected by Meridian's contractors, and where part of, or a whole trading period is missed, and engineer provides estimated consumption to the reconciliation team.

I reviewed the Stark Global Events reports, and checked five examples of clock synchronisation adjustments. All were under five seconds and appropriately corrected by Stark.

**Audit outcome**

Compliant

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

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

**Code reference**

*Clause 19(1) Schedule 15.2*

**Code related audit information**

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

> *19(1)(a) - confirmation of the original meter reading by carrying out another meter reading*
>
> *19(1)(b) - replacement of the original meter reading by another meter reading (even if the replacement meter reading may be at a different date)*
>
> *19(1)(c) - if the original meter reading cannot be confirmed or replaced by a meter reading from another interrogation, then an estimated reading is substituted and the estimated reading is marked as an estimate and it is subsequently replaced in accordance with clause 4(2).*

**Audit observation**

Processes for correction of NHH meter readings were reviewed.

**Audit commentary**

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.

I reviewed eight examples of stopped or defective meters. Four did not require correction as they related to temporary communications issues, or minor time drift. Corrections for the remaining four meters were reviewed.

- One faulty meter was intermittently recording consumption. An estimated closing read was applied to capture consumption during the faulty period and reconciliation submissions were appropriately corrected.
- One stopped meter had a correction processed using estimated closing reads. The issue affected more than 14 months, so the consumption was spread across the previous 12 months to ensure it was captured in reconciliation submissions.
- A correction is in progress for a stopped meter on ICP 0007152882RN847; the ICP is an irrigator and Meridian is currently preparing an estimate of consumption during the stopped period.
- One correction for meter 7257998 on ICP 0000511127NRD5B had not been processed. The meter was replaced on an actual read in Velocity, but had failed testing and was creeping. This is recorded as non-compliance below.

Six examples of multiplier discrepancies corrections were reviewed, to determine whether corrections were completed:

- In five cases, the multiplier was appropriately corrected and flowed through to revision submissions. Where the issue affected more than 14 months, the missed consumption was spread over the previous 12 months to ensure it was captured in reconciliation submissions.

- A multiplier correction for 3407005500CHD0F was not processed. A multiplier of three was applied instead of one. Very low volumes were consumed at this ICP. This is recorded as non-compliance below.

Four examples of bridged meters were reviewed. Three examples were identified by the MEP when the meters were replaced, and one was identified by Meridian on reconnection when the site switched in. Corrections were processed for all the affected meters by entering an estimated closing read in Velocity to capture the bridged consumption.

Ten ICPs with possible consumption while disconnected were reviewed. None had genuine consumption, the differences related to estimated readings after disconnection. Corrections for consumption while disconnected were unable to be assessed. Reporting of consumption where an ICP is inactive for part of a period is discussed further in **section 12.11**.

Meridian's DUML audits identified some corrections required for unmetered load submissions. These corrections were checked during the audit, and had been processed.

- 0000910600TE552 was appropriately corrected from 01/07/2015, and corrected consumption was included in revision submissions.
- WEL created four new ICPs for DUML on 15/12/2016: 0000041245WED7F, 0000041247WEDFA, 0000041246WE1BF and 0000041244WE13A. I confirmed that unmetered load has been correctly moved to these new ICPs.
- Unmetered load for ICPs 0000019934WE91D, 0000018370WE118, and 0000019359WE3BC was being duplicated and reconciled against ICPs 0984112723LC1A6, 0954776933LCC4F, and 0900343060LC471 respectively. I reviewed the correction calculations and spot checked revision submissions which confirmrd that the corrections flowed through to the revision submissions.
- The September and October 2016 unmetered load report provided by Meridian's customer for one database did not include ballast wattages. This resulted in under submission of unmetered load. I confirmed that corrections had been processed and correct consumption was included in revision submissions.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 8.1<br>With: Clause 15.2(2) and 15.12 of part 15, 19(1) of Schedule 15.2, 2(1)(b) of schedule 15.3 and 15.2(2) of part 15 | Two NHH corrections were not processed:<br>• a defective meter on ICP 0000511127NRD5B<br>• an incorrect multiplier on 3407005500CHD0F.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Moderate<br>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 most incorrect data most of the time.<br>The audit identified two corrections which had not been processed. The correction for ICP 000511127NRD5B was identified and partially processed, but had been missed due miscommunication between teams. The correction for ICP 3407005500CHD0F involved very low consumption. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Historic correction for the 2 ICPs identified have been entered in our system and volumes will be washed up over the coming 14 months. | Complete | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Our NHH data correction processes have focused on issues where under submission has occurred which has a negative impact on other participants.<br>Our process will be revised to ensure that metering issues resulting in over submission of volumes are also included so corrections to submission information are made. | May 2018 | |

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

### Code reference

*Clause 19(2) Schedule 15.2*

### Code related audit information

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

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

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

**Audit observation**

Processes for correction of HHR meter readings were reviewed. A sample of 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. I reviewed two corrections for faulty metering, and in both cases EMS had provided incident reports and an explanation of action taken to resolve the issue, including correcting wash up submissions. Consumption was estimated based on data from a period with a quantity and profile similar to what was expected to be used.

The Network Tasman audit identified ICP 0000033266NT7DA, which had Meter 206322304 recorded with flow direction I, but should have had flow direction X. Submissions for this ICP were reviewed, and I found that EMS had consistently reported consumption for this meter with flow direction X, matching the physical meter configuration, not the incorrect data on the registry.

**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.

Corrections to generation data are rare, and normally only required where there has been a change of metering or a meter has been removed. I reviewed one example of a correction during the audit period. For Benmore each meter was collecting data, but the bus total did not add up correctly. I checked the calculations for the correction, and that they were loaded accurately into Stark and appropriately labelled. Compliant audit rails were generated and combined with the supporting calculations they met the audit trail requirements.

**Audit outcome**

Compliant

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

**Code reference**

*Clause 19(3) Schedule 15.2*

**Code related audit information**

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

**Audit observation**

Error and loss compensation arrangements were discussed. The change control process was reviewed.

### Audit commentary

Compensation arrangements are in place for 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 2017, and noted that the change was requested, approved and implemented as expected.

### Audit outcome

Compliant

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

### Code reference

*Clause 22(1) and (2) Schedule 15.2*

### Code related audit information

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

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

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

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

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

*22(2)(d) - the half-hour metering data or the non half hour metering data corrected or altered, and the total difference in volume of such corrected or altered data*

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

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

### Audit observation

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

### Audit commentary

For all NHH, HHR and generation corrections reviewed in **sections 8.1** and **8.2**, I confirmed that the raw meter data was not overwritten, and the journals created were compliant.

### 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**. All HHR data is collected by EMS.

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**, **8.2** and **9.4**.

**Audit commentary**

Processes for estimation of readings were reviewed as part of EMS' agent audit, and found to be compliant.

I traced reads for a sample of 35 ICPs from the source files to Velocity. Reads for 34 ICPs were recorded and labelled correctly. ICP 0001750534TGF88 switched in effective 30/08/2017. When readings were received on 14/09/2017, the read for one register was one unit lower than the switch read. A user manually removed the invoice header to cancel the reads, then re-entered estimate readings for all three registers. The readings for two registers matched what was provided by Wells, and the third reading was modified to match the switch reading to remove the negative consumption. This is recorded as non-compliance below.

Meridian confirmed that this is not normal practice, and I reviewed two other negative readings and noted that they had been entered as actual in Velocity, and reported correctly for reconciliation.

Photo and customer readings are not recorded as actual readings for submission purposes.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 9.1<br>With: Clause 3(3) Schedule 15.2<br><br><br><br>From: 30-Aug-17<br>To: 14-Sep-17 | Two actual readings were labelled as estimates on 14/09/2017 for ICP 0001750534TGF88. One actual reading was not entered.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as strong because they are sufficient to reduce the risk to an acceptable level, and errors are very unlikely to occur. It appears that this was an isolated incident where normal processes were not followed.<br>The impact was low, one domestic ICP was affected and the read period was only 15 days. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We are confirming with our vendor how the system allowed the user to amend the read type in this way as we did not understand this to be possible.<br>Once we understand how this occurred we will review our controls to ensure these are sufficient to either detect or prevent the issue occurring in future.<br>We have carried out additional training with the staff member to ensure they are aware of and follow the correct process going forward. | Feb 2018<br>March 2018<br>Complete | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| See above | | |

## 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 for 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 ten half hours of a day for five generation station meters.

### Audit commentary

**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 Meridian's systems in **section 2.3**. Data provided by Datacol, Delta, Wells, AMS (for AMS meters) and Metrix (for Metrix and Counties Power meters) is not rounded or truncated on import. Data provided by Arc and AMS (for Smartco meters) is truncated to zero decimal places.

**Generation**

I matched the generation data received by Stark to the data received from SCADA for the first ten half hours of a day for five generation station meters. In all cases the data matched, and was recorded to eight decimal places.

### Audit outcome

Compliant

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

### Code reference

*Clause 15 Schedule 15.2*

### Code related audit information

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

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

### Audit observation

The HHR and generation data estimate processes were examined, and a sample of ten estimates were reviewed.

### 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 was assessed as part of their agent audit. I reviewed ten HHR estimates, and found that reasonable endeavours had been used to calculate accurate estimates.

Estimates are checked for reasonableness, including being graphed alongside actual historic consumption.

**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 estimation was 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 0 values.*

### Audit observation

I reviewed and observed the NHH data validation process, including checking a sample of data validations. I reviewed file manager transactions and validations document, and billing validations document, and viewed the work queues.

### Audit commentary

For meters read by Datacol, Delta, and Wells, a localised validation occurs at the hand held device to ensure the reading is within expected high/low parameters. Readings which fail this validation are required to be re-entered, and if the two readings are the same the second reading will be accepted. If the second reading is different, (potentially indicating the first reading was incorrect) then the second reading is required to be re-entered. Datacol, Delta and Wells also provide meter condition information, as discussed in **section 6.4.** Compliance is confirmed for all agents regarding data 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.

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
- 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 not billed to the customer.

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 is monitored on Arc smart fleet, because there are known problems with controllers. Arc send through lists of ICPs not recording consumption. I reviewed Arc's list provided on 8/8/2017 and noted that the meters had been investigated. Apart from this, zero consumption is not specifically monitored, and should be. This is recorded as non-compliance below. Meridian supplies large numbers of ICPs with seasonal or zero consumption including irrigators, holiday homes and earthquake affected sites. Drops in consumption are detected at the time they occur, through the billing validations.

All vacant ICPs go through the vacant disconnection process, which has several stages. Letters are sent to the property, and vacant sites are not disconnected unless Meridian can confirm that electricity consumption is very low or zero. Vacant ICPs with consumption are identified through the billing validations and vacant disconnection process and are identified.

Disconnected ICPs with consumption are not identified through the billing validations, ICPs with a disconnected status are not billed. The revenue assurance team generates a daily spreadsheet to identify disconnected ICPs with an actual read higher than the previous reading. I viewed these reports, and noted that 288 ICPs were on the daily report. Some of the ICPs had transposed meter readings, others had been reconnected by the new retailer before the switch out was effective, and some had load side meters, resulting in small amounts of consumption used by the meter itself. The Meridian revenue assurance team works through these reports to resolve as may issues as possible.

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 8.1**.

Processes to review reconciliation submission information are discussed in **section 12.2.**

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 9.5<br>With: Clause 16 Schedule 15.2<br><br>From: 01-Aug-16<br>To: 31-Jul-17 | Zero consumption not monitored for all ICPs.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Moderate<br>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.<br>The impact is low as drops in consumption will identify most instances. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| As reported Meridian's validation processes check for "unexpected zero consumption" by monitoring and investigating where an ICP that is usually consuming suddenly has low or zero consumption. | Ongoing | Identified |
| Processes for specific monitoring of zero consumption on known high risk meters are in place. | Ongoing | |
| Some ad-hoc reporting and analysis of ICPs with ongoing zero consumption against other metrics to identify potential issues has also conducted been during the audit period. We will formalise this reporting process so it is carried out on a regular basis. | April 2018 | |

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|---|---|
| See above | | |

### 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 0 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

Review of electronic read validation processes and meter event logs.

#### Audit commentary

**HHR**

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. EMS' validation processes were reviewed as part of their agent audit and found to be compliant.

Billing validations may identify changes in volumes that are outside excepted limit, which are then referred to EMS.

I saw evidence of these processes in action during the audit.

**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
- comparison with previous or expected flow patterns.

NHH AMI data is provided by Arc, Metrix (for Metrix and Counties Power meters) and AMS (for AMS and Smartco meters) via SFTP. AMS and Metrix provide meter event data via SFTP, but this is not currently reviewed by Meridian. Event data is not provided by Arc. This is recorded as non-compliance below.

AMS also email selected event information to Meridian for action. I reviewed examples of events emailed to Meridian, including communications faults and possible generation, and noted action had been undertaken where requested.

| **Electricity Authority concerns from 2016 audit** | **Meridian Response** | **Findings during 2017 audit** |
|---|---|---|
| Can you please advise what the process is to ensure that all event logs are received and managed. Can you please provide examples of event logs you receive from SmartCo and Arc**.** | Meridian does not receive "event logs" from any MEP but rather only receives notification from MEPs of exceptions that require investigation. We understand these exceptions are identified as part of the MEPs review of event logs in accordance with their obligations under clauses 7 & 8 of schedule 10.7. Those obligations include;<br>reviewing the event log either manually or by an automated software function which flags exceptions<br>taking appropriate action where problems are apparent; and<br>passing relevant event log entries to the reconciliation participant for the metering installation;<br>checking the event log for evidence of malfunctioning or tampering and if this is detected, carry out the appropriate requirements of this Part. (10.43 – 10.48 - Metering installations that are inaccurate, defective, or not fit for purpose)<br>Meridian understands that as a reconciliation participant our obligation is to take action to investigate when MEPs provide information, from their review of event logs, that there may be an issue that impacts the accuracy of the metering installation (i.e. "relevant event log entries"). Meridian has processes in place to ensure investigation occurs when this information is provided. Although Part 15 requires *"a review of meter and data storage device event log"* we do not believe the intent is that reconciliation participants receive and review all event logs downloaded as part of a meter interrogation. To do so would require significant investment, by all reconciliation participants, in systems and resource and duplicate MEP's obligation under 10.7. Our intention is to further understand what MEPs processes are to meet their obligations outlined | Meter event log information is provided by AMS and Metrix, but not by Arc. |

| Electricity Authority concerns from 2016 audit | Meridian Response | Findings during 2017 audit |
|---|---|---|
| | above and identify any gaps that need resolving.<br><br>To assist this Meridian would appreciate clarification on the Authority's expectation with regard to AMI event log management, specifically<br><br>which participant (MEP or reconciliation participant) it considers has responsibility for reviewing event logs downloaded as part of an electronic meter interrogation and identifying issues that may impact the accuracy of the metering installation and;<br><br>what it considers are "relevant event log entries" | |

**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. 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. 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.
- A review of meter and data logger event list. Any event that could have affected the integrity of metering is investigated.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 9.6<br>With: Clause 17 Schedule 15.2<br><br>From: entire audit period | AMI event information not adequately obtained and monitored. No AMI event information is received from Arc.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Twice previously<br>Controls: Weak<br>Breach risk rating: 3 |
| **Audit risk rating** | Rationale for audit risk rating |
| **Low** | Controls are rated as weak as they are insufficient to mitigate risk of non-compliance. Meridian is monitoring and actioning emailed event information from AMS. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We will work with all our MEP's to ensure that they have processes in place to monitor meter event logs (including tamper events) and pass "relevant" events to us for investigation. This is currently in place with AMS and recently has been implemented with Metrix.<br>Where relevant events are passed to us we will ensure appropriate steps are taken to investigate and resolve any metering issues.<br>We understand the above is sufficient for us to meet the requirements of this clause. | Ongoing<br><br>Ongoing | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| See above | | |

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

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

**Code reference**

*Clause 13.136*

**Code related audit information**

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

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

**Audit observation**

Meridian confirmed that no information is provided to the pricing manager in accordance with this clause.

**Audit outcome**

Not applicable

### 10.2. Unoffered & intermittent generation provision of metering information (Clause 13.137)

**Code reference**

*Clause 13.137*

**Code related audit information**

*Each generator must provide the pricing manager and the relevant grid owner half-hour metering information for:*

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

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

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

**Audit observation**

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**

Meridian confirmed that no information is provided to the pricing manager in accordance with this clause.

**Audit outcome**

Not applicable

### 10.4. Notification of the provision of HHR metering information (Clause 13.140)

**Code reference**

*Clause 13.140*

**Code related audit information**

*If the generator provides half-hourly metering information to the pricing manager or a grid owner under clauses 13.136 to 13.138, or 13.138A, it must also, by 0500 hours of that day, advise the relevant grid owner.*

**Audit observation**

Meridian confirmed that no information is provided to the pricing manager or grid owner in accordance with this clause.

**Audit outcome**

Not applicable

## 11. PROVISION OF SUBMISSION INFORMATION FOR RECONCILIATION

### 11.1. Buying and selling notifications (Clause 15.3)

#### Code reference

*Clause 15.3*

#### Code related audit information

*Unless an embedded generator has given a notification in respect of the point of connection under clause 15.3, a trader must notify the reconciliation manager if it is to commence or cease trading electricity at a point of connection using a profile with a profile code other than HHR, RPS, UML, EG1, or PV1 at least five business days before commencing or ceasing trader.*

*The notification must comply with any procedures or requirements specified by the reconciliation manager.*

#### Audit observation

A registry list was reviewed for the audit period to confirm the profiles used. Processes to create buying and selling notifications were reviewed. The NZX Reconciliation User Guide was reviewed.

#### Audit commentary

Trading notifications are no longer required for the HHR, RPS, UML, EG1 or PV1 profiles. Meridian has trading notifications in place for all other profiles, and there have not been any breach notifications regarding late trading notifications.

Meridian currently has open trading notifications for most NSPs. New trading notifications are mainly required when new embedded networks are created. Meridian is advised by the reconciliation manager and embedded network owner that a new network has been set up, and this is their trigger to create a new notification.

AV080 and AV090 submissions are checked against open trading notifications as part of the electricity reconciliation portal validation checks. If a trader notification is required but has not been provided, the submission will fail to upload.

The registry also provides a daily AV160 trading notifications report to the reconciliation manager, which shows the first and last date each participant traded at each NSP.

When needed, trading notifications are created on the electricity reconciliation portal. There is no facility to enter profile code on the portal, so notifications are only created where Meridian begins or ceases trading on an NSP.

| Issue | Description | Remedial action |
|---|---|---|
| With: Clause 15.3 | Traders are unable to enter profile codes when creating buying and selling notifications on the electricity reconciliation portal, making it difficult to comply with the requirements of clause 15.3. | Pass to Electricity Authority for investigation. |

I reviewed the registry list and confirmed that notifications were provided where required.

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

I reviewed variances for 18 months of GR100 reports, and investigated any large discrepancies.

### Audit commentary

The process for the calculation of ICP days was examined by checking five NSPs with a small number of ICPs each. The ICP days calculation was confirmed to be correct.

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 all available revisions for 18 months. Negative percentage figures indicate that the Meridian ICP days figures are higher than those contained on the registry. The discrepancies are very small and consistent.

| Month | Ri | R1 | R3 | R7 | R14 |
|---|---|---|---|---|---|
| Jan 2016 | 0.01% | 0.01% | 0.01% | 0.00% | - |
| Feb 2016 | 0.00% | 0.02% | 0.03% | 0.03% | - |
| Mar 2016 | 0.09% | 0.10% | 0.11% | 0.12% | - |
| Apr 2016 | 0.01% | 0.02% | 0.01% | 0.01% | - |
| May 2016 | 0.01% | 0.00% | 0.01% | 0.02% | - |
| Jun 2016 | 0.00% | 0.01% | 0.01% | 0.01% | - |
| Jul 2016 | 0.00% | 0.00% | 0.01% | 0.01% | - |

| Month | Ri | R1 | R3 | R7 | R14 |
|---|---|---|---|---|---|
| Aug 2016 | 0.01% | 0.00% | 0.00% | 0.00% | - |
| Sep 2016 | 0.02% | 0.01% | 0.01% | - | 0.01% |
| Oct 2016 | 0.03% | 0.02% | 0.02% | 0.02% | - |
| Nov 2016 | 0.03% | 0.03% | 0.03% | 0.03% | - |
| Dec 2016 | 0.01% | 0.02% | 0.02% | 0.02% | - |
| Jan 2017 | 0.05% | 0.02% | 0.03% | - | - |
| Feb 2017 | 0.01% | 0.00% | 0.01% | - | - |
| Mar 2017 | 0.02% | 0.01% | 0.01% | - | - |
| Apr 2017 | 0.04% | 0.04% | 0.05% | - | - |
| May 2017 | 0.01% | 0.03% | - | - | - |
| Jun 2017 | 0.02% | 0.01% | - | - | - |

I reviewed ten NSP level ICP days differences, and found:

- eight differences related to backdated switches
- two differences were caused by late creation of a pricing plan for a new embedded network, resulting in incomplete ICP information and a delay in reporting.

Two ICPs with incorrect ICP days were identified in the 2016 audit. I re-checked these in the 2017 audit, and found non-compliance still exists for one ICP.

| NSP | Registry days | Meridian days | Difference | 2016 Comments | 2017 Comments |
|---|---|---|---|---|---|
| TKH0111 | 335 | 334 | 1 | One new connection ICP had the meter installed on 26/04/2016 (the date of energisation) but it should have been installed in Velocity on 25/06/2016 to ensure the HE calculations and the ICP days were correct. | Cleared. I confirmed that the energisation date was incorrect. It should have been 27/04/2016 to match the initial energisation date and meter certification date. The meter installation and original submissions were correct. |

| NSP | Registry days | Meridian days | Difference | 2016 Comments | 2017 Comments |
|---|---|---|---|---|---|
| CLH0111 | 3372 | 3363 | 9 | One continuous ICP had 21 ICP days instead of 30 ICP days due to an incorrect register set up in Velocity. | Still existing. I was unable to confirm the ICP the error related to, but noted ICP days remained the same for this NSPs in revision submissions. |

The registry list was reviewed to identify upgrades from NHH to HHR, and downgrades from HHR to NHH. I reviewed a sample of two upgrades and four downgrades. In all cases the metering was replaced at the time of the upgrade or downgrade.

For the downgrades, the HHR meter should be removed, and the NHH meter installed on the same day. This will treat the day of the meter removal as HHR, and record all consumption from the time the new meter is installed until midnight as the first day of NHH consumption. For the four examples checked, the NHH meter was installed in Velocity the day after the meter installation, resulting in one missing ICP day, and NHH consumption beginning from the day after the meter was installed. For the upgrades checked:

- ICP 0000504108DECAA was replaced twice, once on the 29/01/2017 and again on 30/01/2017 after the replacement meter blew the fuses at the installation. The meter which was installed on 29/01/2017 was not recorded in Velocity, and no estimate of consumption was created. This resulted in under reporting of one ICP day, and one day of missing consumption.
- ICP 0007140967RND17 was replaced on 03/04/2017. The NHH meters were closed in Velocity on 01/04/2017, and the new meters were opened from 03/04/2017 resulting in one ICP day being missed, but all consumption being recorded.

Incorrect processing of upgrades from NHH to HHR, and downgrades from HHR to NHH are recorded as non-compliance below. Non-compliance is also recorded in **section 11.4** for missing HHR aggregates and volumes data, and **section 12.13** for profile changes.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 11.2<br>With: Clause 15.6 of part 15<br><br>From: 24-Dec-16<br>To: 06-Apr-17 | Four changes from HHR to NHH, and one change from NHH to HHR had incorrect meter installation dates recorded in Velocity, resulting in one ICP day being omitted per ICP.<br>One meter installed for one day was not recorded in Velocity, which resulted in one ICP day not being reported.<br>Potential impact: Low<br>Actual impact: None<br>Audit history: Once previously<br>Controls: Weak<br>Breach risk rating: 3 |

| Audit risk rating | Rationale for audit risk rating | | |
|---|---|---|---|
| **Low** | Controls are rated as weak, because all examples identified has been processed incorrectly. The impact is rated as low because the number of ICP days affected is low. | | |
| **Actions taken to resolve the issue** | | **Completion date** | **Remedial action status** |
| We are investigating our processes and system related to upgrades and downgrades of metering to understand how and why the discrepancies outlined have occurred.<br>We will follow up with our agent regarding the alleged missing ICP day, consumption and HH aggregates for ICP 0000504108DECAA. This HH submission information is not supplied from our Velocity system therefore the meter not being installed in our system does not mean volumes, ICP days and HHR aggregates weren't estimated by our agent. | | Jan 2018<br>Jan 2018 | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | | **Completion date** | |
| We will revise our upgrade/downgrade process and/or our system once the root cause of the discrepancies are better understood. | | May 2018 | |

### 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 2015 to March 2017 were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

### Audit commentary

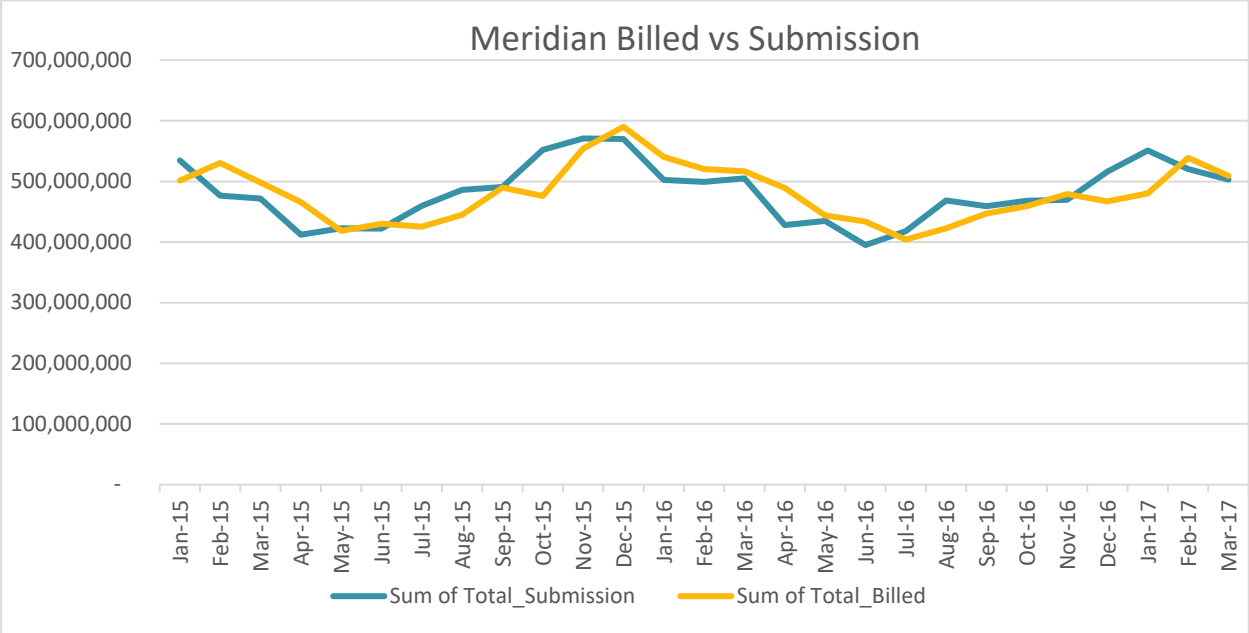
The process for calculating and submitting electricity supplied information was reviewed.

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 were also checked; because the customers are not billed, the as billed submission is based on readings and included in the AV120 based on the read date.

I also checked the difference between submission and electricity supplied information for a 27 month period, and the results are shown chart below. The total difference is -0.67% for the two years ended March 2017 (billed lower than submission).

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.

The differences appear to relate mainly to timing differences between billed and submitted data. When the billing month and submission month are aligned the monthly differences are small.




### Audit outcome

Compliant

## 11.4. HHR aggregates information provision to the reconciliation manager (Clause 15.8)

### Code reference

*Clause 15.8*

### Code related audit information

*A retailer or direct purchaser (excluding direct consumers) must deliver to the reconciliation manager its total monthly quantity of electricity supplied for each half hourly metered ICP for which it has provided submission information to the reconciliation manager, including:*

> *15.8(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period*

*15.8(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.*

### Audit observation

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 the HHRAGGS file, and the Electricity Authority confirmed this was acceptable during EMS' 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 nine months.

The GR090 ICP Missing files were examined for August 2016 to July 2017. All differences were reviewed.

### 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. Compliance was confirmed.

The GR090 ICP Missing files were examined for all revisions for July 2016 to June 2017. August 2016 to July 2017. All differences were reviewed and found to relate to:

- Generation only ICPs. The EMS 2017 audit found that the HHR Aggregates file does not contain records for generation only ICPs. The Code does not specifically state whether this information is required or not, but the file format has a field for flow direction. The Electricity Authority has confirmed that generation quantities are not required in the file.
- Backdated submission type updates for new connections.
- Backdated switches.
- Switch withdrawals.

Late switching files and updates to the registry are discussed in **sections 3** and **4**.

During review of ICP days, I found than an upgrade to HHR for ICP 0000504108DECAA was not processed correctly. Metering was replaced twice, once on the 29/01/2017 and again on 30/01/2017 after the replacement meter blew the fuses at the installation. The meter which was installed on 29/01/2017 was not recorded in Velocity, and no estimate of consumption was created. This resulted in under reporting of one ICP day, and one day of missing consumption. The missing consumption is raised as non-compliance below. Non-compliance is also recorded in **section 11.2** for missing ICP days data, and **section 12.13** for profile changes.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 11.4<br>With: Clause 15.8<br><br>From: entire audit period | HHR aggregates file does not contain electricity supplied information.<br>One meter installed for one day was not recorded in Velocity, which resulted in one day of consumption not being reported.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Once previously<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as moderate as they are sufficient to reduce the risk of incorrect information most of the time, but there is some room for improvement.<br>The impact is low because:<br>• the requirement to report electricity supplied information is an error in the code, EMS is providing submission information as expected<br>• the under submission of consumption for one day occurred due to a manual processing error for a rare event. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We are following up with our agent regarding the alleged missing ICP day, consumption and HH aggregates for ICP 0000504108DECAA. This HH submission information is not supplied from our Velocity system therefore the meter not being installed in our system does not mean volumes, ICP days and HHR aggregates weren't estimated for that day by our agent. | Jan 2018 | Investigating |
| We will ensure submission information for the relevant reconciliation period is corrected if necessary. | Jan 2018 | |
| We understand the discrepancy between the Code and the RM Functional spec in respect of the HHR Aggregates file is a technical issue that is to be corrected as part of the next Code change "omnibus" due for consultation this calendar year. | N/A | |
| **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**

A diverse characteristics sample of five daylight savings adjustments were reviewed for HHR generation data, covering changes to and from daylight savings.

#### 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 a sample of files five generation station meters 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.**

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**.

A sample of corrections were reviewed to ensure that they flowed through to revision submissions in **sections 8.1** and **8.2**.

### Audit commentary

Meridian and their agents prepare submission information for each NSP for the relevant consumption periods, the submission information includes:

- HHR volume information for generation stations
- NHH volume information (forward or historic estimates)
- unmetered load quantities for each ICP that has unmetered load associated with it.

**HHR**

Submission of HHR information was reviewed as part of EMS' agent audit, and found to be compliant.

**NHH**

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 nine. ICP 0007178569RNEAC's start read was not validated, resulting in it not being used for historic estimate and forward estimate being calculated. Meridian intends to validate this read so that historic estimate will be calculated. This is discussed further in **section 12.8**.
- 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.

**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 by the registry for the relevant consumption period at the time the reconciliation participant assembles the submission information. Volume information must be derived in accordance with Schedule 15.2.*

*However, if, in relation to a point of connection at which the reconciliation participant trades electricity, a notification given by an embedded generator under clause 15.13 for an embedded generating station is in force, the reconciliation participant is not required to comply with the above in relation to electricity generated by the embedded generating station.*

### Audit observation

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 five 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**

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.

GR170 and AV080 files for January to May 2016, and January 2017 were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required.

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.

### Audit outcome

Compliant

## 12.4. Grid owner volumes information (Clause 15.9)

### Code reference

*Clause 15.9*

### Code related audit information

*The participant (if a grid owner) must deliver to the reconciliation manager for each point of connection for all of its GXPs, the following:*

- *submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period (clause 15.9(a))*
- *revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period. (clause 15.9(b))*

### Audit observation

A registry list with history was reviewed and 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 that Meridian does not own any local or embedded networks.

### 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 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.

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 **sections 8.1** and **8.2**.

### Audit commentary

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

Some NHH corrections were not processed and submitted at the next available opportunity. This is recorded as non-compliance in **section 8.1**.

### Audit outcome

Compliant

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

### Code reference

*Clause 4 Schedule 15.2*

### Code related audit information

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

*Volume information created using estimated readings must be subsequently replaced at the earliest opportunity by the reconciliation participant by volume information that has been created using validated meter readings or permanent estimates by, at the latest, the month 14 revision cycle.*

*A permanent estimate may be used in place of a validated meter reading, but only if, despite having used reasonable endeavours; the reconciliation participant has been unable to obtain a validated meter reading.*

### Audit observation

NHH volumes 14 month revisions were reviewed for December 2015 to January 2016 to identify any forward estimate still existing.

### Audit commentary

Review of the 14 month revisions for December 2015 to January 2016 showed that not all estimated meter readings had been replaced with validated meter readings. Estimated meter readings are not being made permanent at the 14-month point as required by the Electricity Authority. This is recorded as non-compliance below.

The 2016 audit found final (switch) estimates were not being considered permanent estimates, and consumption information was labelled as forward estimate instead of historic estimate. A system change to allow permanent estimates to be entered was completed in April 2017. Some forward estimate still exists. I examined five NSPs at ICP level where forward estimate still existed at 14 months, and submission occurred after February 2017. In all cases, 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.

Unvalidated switch in reads are not treated as actual or permanent estimate by the historic estimate calculation. Occasionally a switch in read is not validated in Velocity, which will result in it not being used to calculate historic estimate. I saw one example of this during the audit, ICP 0007178569RNEAC's start read was not validated, resulting in forward estimate being calculated. Meridian is aware of this intermittent issue, and intends to validate this read so that historic estimate will be calculated before revision 14.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 12.8<br>With: Clause 4 of Schedule 15.2<br><br>From: entire audit period | Some estimates not replaced at R14.<br>Potential impact: Medium<br>Actual impact: Low<br>Audit history: Three times previously<br>Controls: Moderate<br>Breach risk rating: 4 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Medium** | 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.<br>Total forward estimate for the three months reviewed was 3,438,742 kWh – 1,653,127 kWh for December 2015, 849,798 kWh for January 2016 and 935,817 for February 2016. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We have implemented a system change and supporting process to mark estimates as "permanent" where no actual read has been obtained for 12 months and this is being carried out monthly. | April 2017 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| We will investigate a further system change to so that final switch estimates are treated as permanent estimates where appropriate. | June 2018 | |

## 12.9. Reconciliation participants to prepare information (Clause 2 Schedule 15.3)

### Code reference

*Clause 2 Schedule 15.3*

### Code related audit information

*If a reconciliation participant prepares submission information for each NSP for the relevant consumption periods in accordance with the Code, such submission information must comprise the following:*

- *half hour volume information for each ICP notified in accordance with clause 11.7(2) for which there is a category 3 or higher metering installation (clause 2(1)(a))*
- *for each ICP about which information is provided under clause 11.7(2) for which there is a category 1 or category 2 metering installation (clause 2(1)(b)):*
  *a) half hour volume information for the ICP; or*

b) *non half hour volumes information calculated under clauses 4 to 6 (as applicable).*
c) *unmetered load quantities for each ICP that has unmetered load associated with it derived from the quantity recorded in the registry against the relevant ICP and the number of days in the period, the distributed unmetered load database, or other sources of relevant information (clause 2(1)(c))*

- *to create non half hour submission information a reconciliation participant must only use information that is dependent on a control device if (clause 2(2)):*
  a) *the certification of the control device is recorded on 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**

EMS prepares HHR submissions and their processes were reviewed as part of their agent audit.

Aggregation and content of reconciliation submissions prepared by Meridian were reviewed.

**Audit commentary**

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.

**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

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

### Audit outcome

Compliant

## 12.11. Historical estimate process (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 kWhPx 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.

### Audit commentary

The table below shows that all scenarios are calculating as expected and correct SASV 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. Situations where part of a read period is inactive are not adequately covered in the code. The code specifies that the read period SASV should include all days in the read period, which would result in some consumption being apportioned to inactive dates and not reported. This is raised as a code issue below.

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 | ICPs become Inactive part way through a month. | Consumption is only calculated for the Active portion of the month. | Compliant |
| B | ICPs become active then inactive within a month. | Consumption is only calculated for the Active portion of the month. | Compliant |
| C | ICPs become inactive, then active, then inactive again within a month. | Consumption is only calculated for the Active portion of the month. | Compliant |
| D | 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 |
| E | ICPs start on the 1st day of a month. | Consumption is calculated to include the 1st day of responsibility. | Compliant |
| F | ICPs end on the last day of the month. | Consumption is calculated to include the last day of responsibility. | Compliant |
| G | ICPs start part way through a month. | Consumption is calculated to include the 1st day of responsibility. | Compliant |
| H | ICPs end part way through a month. | Consumption is calculated to include the last day of responsibility. | Compliant |
| I | ICP is Lost and Won Back in a month. | Consumption is calculated for each day of responsibility. | Compliant |
| J | Unmetered Load for a full month | Consumption is calculating correct based on daily unmetered kWh for a whole month. | Compliant |
| K | Unmetered load for a part month (switch out or de-energisation partway through a month) | Consumption is calculating correct based on daily unmetered kWh only for the Active part of the month. | Compliant |
| L | ICP starts on 1st and Ends on Last day of month. | Consumption is calculated for each day of responsibility. | Compliant |
| M | Rollover Reads | Consumption is calculated correctly in the instance of meter rollovers. | Compliant |

| Issue | Description | Remedial action |
|---|---|---|
| Clause 4 of schedule 15.3 | The code method to calculate historic estimate does not adequately account for situations where the trader does not enter disconnection or reconnection reads, resulting in an ICP with inactive status for part of a read period.<br><br>In these cases, if the code method to calculate historic estimate was applied, some of the read period consumption would be apportioned to the inactive days, and not reported. | Electricity Authority to investigate. |

The treatment of estimated switch reads when calculating historic estimate is recorded as non-compliance in **section 12.8**.

**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**

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 2015 | 1 | 1 | 1 | 1 | 230 |
| Jan 2016 | 1 | 4 | 4 | 4 | 231 |
| Feb 2016 | 1 | 1 | 1 | 1 | 234 |
| May 2016 | 0 | 0 | 1 | - | 236 |
| Jun 2016 | 0 | 1 | 1 | - | 238 |
| Jul 2016 | 1 | 2 | 2 | - | 238 |
| Sep 2016 | 1 | 1 | - | - | 244 |
| Oct 2016 | 2 | 1 | - | - | 257 |
| Nov 2016 | 2 | 2 | - | - | 259 |

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

| Month | Revision 1 | Revision 3 | Revision 7 | Revision 14 |
|---|---|---|---|---|
| Dec 2015 | 0.21% | -2.54% | -2.47% | -2.47% |
| Jan 2016 | 12.21% | 11.73% | 11.77% | 11.73% |
| Feb 2016 | -2.56% | -3.25% | -3.33% | -3.16% |
| May 2016 | -2.49% | -2.57% | -1.23% | - |
| Jun 2016 | -0.90% | 0.25% | 1.01% | - |
| Jul 2016 | -1.66% | -2.23% | -1.83% | - |
| Sep 2016 | 2.00% | 0.80% | - | - |
| Oct 2016 | 0.19% | -0.24% | - | - |

| Month | Revision 1 | Revision 3 | Revision 7 | Revision 14 |
|---|---|---|---|---|
| Nov 2016 | 3.38% | 3.73% | - | - |

I reviewed six balancing area differences where the variation between revisions was more than ± 15% and ± 100,000 kWh – ASHBURTEASHG (January 2016), CENTRALALPEG (January 2016), CROMWELDUNEG (January 2016), SWCKMPOWG (January 2016 and May 2016) and KAI0111MPOWG (May 2016). The May 2016 differences are primarily due to changes in balancing areas. Special SASV were created by the reconciliation manager for early allocations, but these differed from wash up SASV, resulting in some large submission differences. The January 2016 differences all related to irrigation load which has been estimated on the previous year's consumption, which was lower than the actual consumption once reads were received. No errors were identified.

Meridian has monitoring in place for variations between revisions, and in all cases, could explain the reasons for the differences. The reasons mostly relate to the following issues:

- movement of volume following the application of seasonal shape files
- replacement of estimates with actual data
- seasonal loads.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 12.12<br>With: Clause 6 of Schedule 15.3<br><br>From: entire audit period | The accuracy threshold was not met for all months and revisions.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Three times previously<br>Controls: Moderate<br>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.<br>Initial data is replaced with revised data, and washed up. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We have moved a large number of our irrigation customers to end of month read and billing rounds through the winter period. This should result in less reliance on FE, more accurate initial submissions and less variation between revisions for balancing areas where irrigation volume is significant. | Complete | Identified |

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|---|---|
| See above | | |

### 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 01/01/2017 – 30/06/2017 was examined to identify all ICPs which had a profile change during the report period.

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

**Audit commentary**

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. The bulk upload process requires a meter reading, and is discussed further in **section 6.3**.

Issues with manual processing of upgrades to HHR and downgrades to NHH resulted in actual readings not being applied effective from the date of the profile change for the six examples checked. This is discussed further in **section 11.2** and recorded as non-compliance below.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 12.13<br>With: Clause 7 Schedule 15.3<br><br>From: entire audit period | Reads or permanent estimates were not applied to the profile change date for four ICPs downgraded from HHR to NHH, and two meters upgraded from NHH to HHR.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | Controls are rated as moderate, as they are sufficient to ensure an actual read is entered on the day a profile change takes effect, except where there have been manual processing errors during upgrades to HHR and downgrades to NHH.<br>The audit risk rating is low, as a small number of ICPs are affected. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| We are investigating our processes and system related to upgrades and downgrades of metering to understand how and why the discrepancies outlined above have occurred. | Dec 2017 | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| We will revise our upgrade/downgrade process and/or system once the root cause of the identified discrepancies is better understood. | May 2018 | |

## 13. SUBMISSION FORMAT AND TIMING

### 13.1. Market Administrator Meter Reading Reports (Clauses 8 & 9 of Schedule 15.2)

**Code reference**

*Clauses 8 & 9 of Schedule 15.2*

**Code related audit information**

*Provision of meter read frequency reports to the Authority, no later than 20 business days after the end of the month*

**Audit observation**

I reviewed monthly meter reading frequency reports for the months of March to May 2017, to ensure that they met the report requirements.

I reviewed processes to ensure the reports are accurate and submitted on time, and the timeliness of submission for a sample of reports.

**Audit commentary**

A sample of three reports were reviewed, and I confirmed that they met the report requirements.

I reviewed the report submissions for December 2016, April 2017, May 2017, June 2017, and July 2017, and confirmed that the reports were submitted on time.

**Audit outcome**

Compliant

### 13.2. Provision of submission information to the RM (Clause 8 Schedule 15.3)

**Code reference**

*Clause 8 Schedule 15.3*

**Code related audit information**

*Submission information provided to the reconciliation manager must be aggregated to the following level:*

- *NSP code (clause 8(a))*
- *reconciliation type (clause 8(b))*
- *profile (clause 8(c))*
- *loss category code (clause 8(d))*
- *flow direction (clause 8(e))*
- *dedicated NSP (clause 8(f))*
- *trading period for half hour metered ICPs and consumption period or day for all other ICPs. (clause 8(g))*

**Audit observation**

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

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

Zeroing in the AV080 submission is discussed in **section 12.2** and was found to be compliant.

### Audit commentary

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

- NSP code
- reconciliation type
- profile
- loss category code
- flow direction
- dedicated NSP
- trading period for half hour metered ICPs and consumption period or day for all other ICPs.

The AV080 NHH volumes aggregation process was examined by checking five NSPs with a small number of ICPs each. The AV110 ICP days aggregation process was examined by checking five NSPs with a small number of ICPs each. The aggregation was confirmed to be correct.

The submitted data was also compared to billed data in **section 11.3**, and appeared reasonable.

### Audit outcome

Compliant

## 13.3. Reporting resolution (Clause 9 Schedule 15.3)

### Code reference

*Clause 9 Schedule 15.3*

### Code related audit information

*When reporting submission information, the number of decimal places must be rounded to not more than two decimal places.*

*If the unrounded digit to the right of the second decimal place is greater than or equal to five, the second digit is rounded up, and if the digit to the right of the second decimal place is less than five, the second digit is unchanged.*

### Audit observation

I reviewed the rounding of data on the AV090, AV140 and AV080 reports as part of the aggregation checks. AV130 submissions were reviewed in **section 12.6**.

### Audit commentary

Submission information is appropriately rounded to no more than two decimal places.

### Audit outcome

Compliant

## 13.4. Historical estimate reporting to RM (Clause 10 Schedule 15.3)

### Code reference

*Clause 10 Schedule 15.3*

### Code related audit information

*By 1600 hours on the 13th business day of each reconciliation period the reconciliation participant must report to the reconciliation manager the proportion of historical estimates per NSP contained within its non half hour submission information.*

*The proportion of submission information per NSP that is comprised of historical estimates must (unless exceptional circumstances exist) be:*

- *at least 80% for revised data provided at the month 3 revision (clause 10(3)(a))*
- *at least 90% for revised data provided at the month 7 revision (clause 10(3)(b))*
- *100% for revised data provided at the month 14 revision (clause 10(3)(c)).*

### Audit observation

The timeliness of submissions of historic estimate was reviewed in **section 12.2**.

I reviewed nine months of AV080 reports to 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.

**Quantity of NSPs where revision targets were met**

| Month | Revision 3 80% Met | Revision 7 90% Met | Revision 14 100% Met | Total |
|---|---|---|---|---|
| Dec 2015 | - | - | 166 | 322 |
| Jan 2016 | - | - | 174 | 322 |
| Feb 2016 | - | - | 175 | 325 |
| Mar 2016 | - | 322 | - | 327 |
| Apr 2016 | - | 319 | - | 327 |
| May 2016 | - | 320 | - | 327 |
| Jan 2017 | 347 | - | - | 355 |
| Feb 2017 | 332 | - | - | 357 |
| Mar 2017 | 345 | - | - | 361 |

The table below shows that the percentage HE at a summary level for all NSPs is well above the required targets for the three and seven month revisions, and below the target for the 14 month revisions.

| Month | Revision 3 80% Target | Revision 7 90% Target | Revision 14 100% Target |
|---|---|---|---|
| Dec 2015 | - | - | 99.5% |
| Jan 2016 | - | - | 99.7% |
| Feb 2016 | - | - | 99.7% |
| Mar 2016 | - | 98.7% | - |
| Apr 2016 | - | 98.6% | - |
| May 2016 | - | 98.7% | - |
| Jan 2017 | 97.3% | - | - |
| Feb 2017 | 97.4% | - | - |
| Mar 2017 | 97.4% | - | - |

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 13.4<br>With: Clause 10 of Schedule 15.3<br><br>From: entire audit period | Historic estimate thresholds were not met for some revisions.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Five times previously<br>Controls: Moderate<br>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.<br>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 |
|---|---|---|
| We have implemented a system change and supporting process to mark estimates as "permanent" where no actual read has been obtained for 12 months and this is being carried out monthly. This has resulted in HE being calculated for these ICPs where previously it would have been FE. | April 2017 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| We will investigate implementation of a further system change so that final switch estimates are treated as permanent estimates, and used to calculate HE, where appropriate. | June 2018 | |

## CONCLUSION

The audit found 28 non-compliance issues, makes three recommendations and two issues are raised.

Meridian continue to make good progress in improving their level of compliance. In relation to registry and switching management it is particularly noticeable in relation to the management of ANZSIC codes, MEP changes and status changes to existing ICPs. The areas that require specific attention to further improve the level of compliance in this area are:

- management of new connections
- management of switching in relation to ensuring the CS file content is correct
- some standard unmetered load information is incorrect
- improvements are required with the management of AMI event information.

Submission related processes are generally operating well with an experienced team overseeing this area. As recorded in the last audit, some consumption information based on forward estimates is still existing at 14 months. This is mainly due to long term unread ICPs and some final estimates not being labelled as permanent estimates, therefore the consumption information is still labelled as FE instead of HE. The two areas that require specific attention to improve the level of compliance are:

- the management of AMI meter events
- ICP day discrepancies occurring for changes from HHR to NHH downgrades and NHH to HHR upgrades.

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 60, which just pushes it into 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.

## PARTICIPANT RESPONSE

This is Meridian's first Reconciliation Participant audit under the revised Electricity Authority audit programme that came into effect 1 June 2017.

The audit has identified some areas for improvement and we are taking action to address these.

It is evident from our review of audit reports published under the new regime to date that there are a number of reported non-compliances, caused by small numbers of exceptions, which are common across the majority of reconciliation participants who perform the same activities.

This indicates that there are areas of the Code where obligations may be overly onerous in relation to the level of risk or may be unrealistic. We encourage the Authority to consider reassessing Code obligations where this is the case.