

ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT

The Veritek logo consists of the word "VERITEK" in a blue, serif, all-caps font. To the left of the text is a thin vertical blue line. A horizontal blue line is positioned below the text, starting from the vertical line and extending to the right.

For

MERIDIAN ENERGY LIMITED

Prepared by: Tara Gannon and Rebecca Elliot

Date audit commenced: 8 October 2018

Date audit report completed: 12 November 2018

Audit report due date: 18 December 2018

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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 35 non-compliances and makes two recommendations. No issues are raised.

Meridian continue to make good progress in improving their level of compliance for registry and read information management. Progress has been made in the management of ANZSIC codes, the timeliness of MEP nominations, 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 unmetered load, including DUMML compliance and ICPs with standard unmetered load over 3,000 and 6,000 kWh
- validation of customer readings - customer readings are currently validated against other validated readings including previous customer readings, but should be validated against a set of readings from another source.

Overall, switching processes are well managed with most files sent on time. There were some issues with the content of CS files, particularly for ICPs where there is no active customer. Meridian intends to make some enhancements in this area, including applying AMI readings in CS files where a scheduled billed reading is not available for the event date.

Submission related processes are generally operating well with an experienced team overseeing this area. Some process issues are still present, including:

- existence of forward estimate at revision 14, because some final estimates are not being correctly labelled as permanent estimates
- disconnection and reconnection reads are not consistently being entered, which can lead to inactive consumption being recorded in the wrong period or not reported
- ICP days and consumption are not consistently reported correctly for ICP upgrades and downgrades.

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 68 which results in an indicative audit frequency of three months. I have considered this result in conjunction with Meridian's responses and my recommendation for the next audit date is 12 months.

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.	Moderate	Low	2	Identified
Electrical Connection of Point of Connection	2.11	10.33A	Seven ICPs were certified later than 5 days after electrical connection. 109 ICPs which had expired and/or interim certification were reconnected.	Moderate	Low	2	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	Identified
Provision of information to the registry manager	3.5	9 Schedule 11.1	Some registry information was not updated within 5 business days of the event.	Moderate	Low	2	Identified
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	Two active occupied ICPs had an unknown ANZSIC code. One ICP had an incorrect ANZSIC code but is no longer supplied by Meridian.	Strong	Low	1	Identified
Management of "active" status	3.8	17 Schedule 11.1	ICP 0001394423UN83B has an incorrect active date on the registry.	Moderate	Low	2	Cleared, the status date has been corrected.
Management of "inactive" status	3.9	19 Schedule 11.1	Five status updates to inactive had incorrect status dates applied. 11 ICPs did not have their status returned to active where consumption during a	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			period with inactive status was detected.				
Losing trader must provide final information - standard switch	4.3	5 Schedule 11.3	Some CS read and average daily kWh information recorded in CS files is incorrect.	Weak	Low	3	Investigating
Retailers must use same reading - standard switch	4.4	Clause 6(1) and 6A Schedule 11.3	One RR issued to Meridian was rejected in error.	Strong	Low	1	Identified
Non-half hour switch event meter reading - standard switch	4.5	Clause 6(2) and (3) Schedule 11.3	Five RRs issued to Meridian under clause 6(2) and (3) of Schedule 11.3 were invalidly rejected.	Moderate	Low	2	Identified
Gaining trader informs registry of switch request - switch move	4.7	9 Schedule 11.3	Switch move NTs were sent for two contract customer groups, where the customers were not moving in effective from the switch date.	Strong	Low	1	Identified
Losing trader provides information - switch move	4.8	10(1) Schedule 11.3	Incorrect AN response codes were applied for two switch moves.	Strong	Low	1	Investigating
Losing trader must provide final information - switch move	4.10	11 Schedule 11.3	Some CS read and average daily kWh information recorded in CS files is incorrect.	Weak	Low	3	Investigating
Losing trader provision of information - gaining trader switch	4.13	15 Schedule 11.3	One late AN file for a HH switch.	Strong	Low	1	Identified
Withdrawal of switch requests	4.15	17 and 18 Schedule 11.3	Three NWs had incorrect withdrawal codes applied.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			151 NWs were issued late.				
Unmetered threshold	5.2	10.14 (2)(b)	14 unmetered ICPs have estimated daily kWh of 3,000-6,000 kWh but have not been confirmed to have an approved load type.	Moderate	Low	2	Investigating
Unmetered threshold exceeded	5.3	10.14 (5)	Five standard unmetered ICP with annual consumption over 6,000 kWh.	Moderate	Low	2	Investigating
Distributed unmetered load	5.4	11 Schedule 15.3, Clause 15.37B & 16A.26	12 of 17 distributed unmetered databases not accurate. Two distributed unmetered databases not yet audited. One database audited late.	Moderate	High	6	Investigating
Electricity conveyed & notification by embedded generators	6.1	10.13, 10.24 and 15.13	While meters were bridged, energy was not metered and quantified according to the code for four ICPs. ICP 0000100018WP6F5 is settled by difference without an exemption being in place.	Strong	Low	1	Identified
Certification of control devices	6.3	Clause 33 Schedule 10.7 and 2(2) Schedule 15.3	Seven ICPs had a profile requiring control device certification without a certified control device or an AMI meter installed.	Strong	Low	1	Cleared
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	Customer reads are treated as actual reads when they are not validated against a set of actual meter reads from another source in some instances.	Weak	Low	3	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Interrogate meters once (Clause 7(1) and (2) Schedule 15.2)	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 interrogated annually	6.9	8(1) and (2) Schedule 15.2	One ICP where exceptional circumstances were not met.	Strong	Low	1	Identified
Correction of NHH meter readings	8.1	19(1) Schedule 15.2	A NHH correction for a bridged period for ICP 0000555986NR419 was not processed accurately.	Strong	Low	1	Identified
Identification of readings	9.1	3(3) Schedule 15.2	Customer reads are treated as actual reads when not validated against a set of validated actual reads from another source in some instances.	Weak	Low	3	Identified
NHH metering information data validation	9.5	16 Schedule 15.2	Zero consumption not monitored for all ICPs.	Moderate	Low	2	Investigating
Electronic meter readings and estimated reading	9.6	17 Schedule 15.2	EMS did not check event logs for phase failure for some meter types prior to July 2018.	Strong	Low	1	Cleared
Buying and selling notifications	11.1	15.3	No trading notification was provided for TOC TON and DST profiles.	Strong	Low	1	Disputed
Calculation of ICP days	11.2	15.6	ICP days incorrect due to meter start read being omitted from reconciliation for one example. Two changes from HHR to NHH, and four changes from NHH to HHR had incorrect	Weak	Low	3	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			meter installation dates recorded in Velocity, resulting in one ICP day being omitted per ICP. Where ICP statuses or status dates are recorded incorrectly, incorrect ICP days may be reported.				
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	Disputed
Accuracy of submission information	12.7	15.7	Some submission information was inaccurate.	Moderate	Low	2	Identified
Permanence of meter readings for reconciliation	12.8	4 of Schedule 15.2	Some estimates not replaced at R14.	Moderate	Medium	4	Investigating
Forward estimate process	12.12	6 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 two ICPs downgraded from HHR to NHH, and four meters upgraded from NHH to HHR.	Moderate	Low	2	Identified
Historical estimate reporting to RM	13.3	10 Schedule 15.3	Historic estimate thresholds were not met for some revisions.	Moderate	Low	2	Identified
Future Risk Rating						68	

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

Subject	Section	Description	Recommendation
Changes to unmetered load (Clause 9(1)(f) of Schedule 11.1)	3.7	Changes to unmetered load	<p>Confirm the unmetered load for ICPs where Meridian's unmetered load is more than ± 2 kWh different to the distributor's unmetered load, including:</p> <ul style="list-style-type: none"> • 0000039251HRF8A • 0000040201HR19B • 0000040202HRD5B • 0000742354TE377 • 1001102586UN2FC • 0007169385RN84F.
Electricity conveyed & notification by embedded generators (Clause 10.13, Clause 10.24 and 15.13)	6.1	Distributed generation metering	Query the flow direction for 0003330452ML44E meter 00095947 register 2, which has flow direction X and register content EG with the MEP.

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

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

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

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

Audit commentary

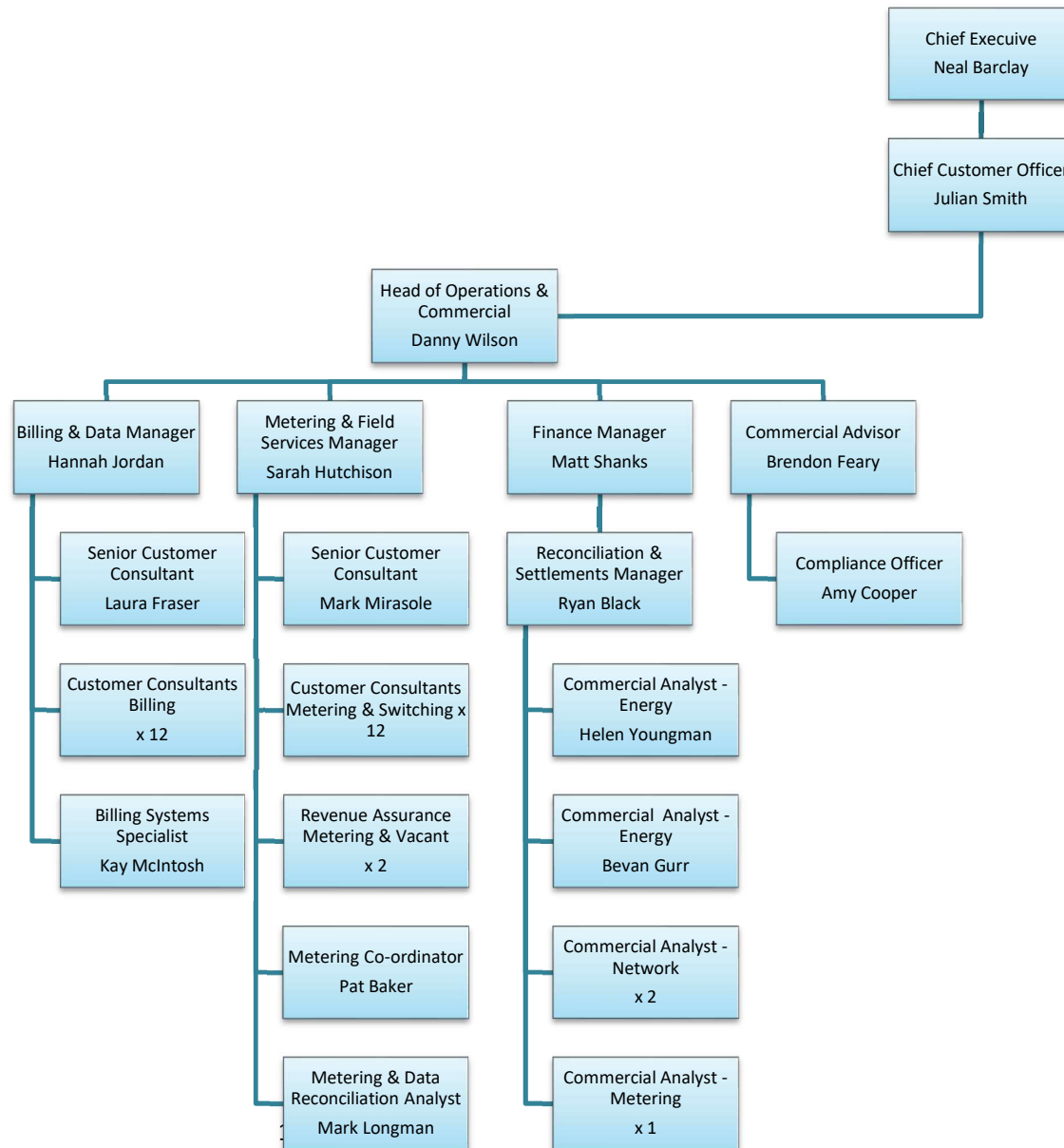
Exemption 245 allows Meridian to use subtraction to determine submission information for ICP 0009805800AL991. The exemption is in place from 23 December 2016 until the earlier of

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

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

1.2. Structure of Organisation

Meridian provided their current organisation structure:



1.3. Persons involved in this audit

Auditors:

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

Personnel assisting in this audit were:

Name	Title
Amy Cooper	Compliance Officer
Bevan Gurr	Energy Data Analyst
Carolyn Bowater	Customer Consultant
Damien Rillstone	Revenue Assurance Specialist
Edward Lissaman	Senior Retail Insight Specialist
Hannah Jordan	Billing and Data Manager, Retail
Mary Yee	Customer Consultant
Helen Youngman	Energy Data Analyst
Laura Fraser	Senior Customer Consultant- Billing
Kay McIntosh	Billing System Specialist
Mark Mirasole	Senior Customer Consultant, Metering & Switching
Pat Baker	Customer Consultant
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 contractor's fulfilment of the participant's Code obligations
- cannot assert that it is not responsible or liable for the obligation due to something the agent has or has not done.

Audit observation

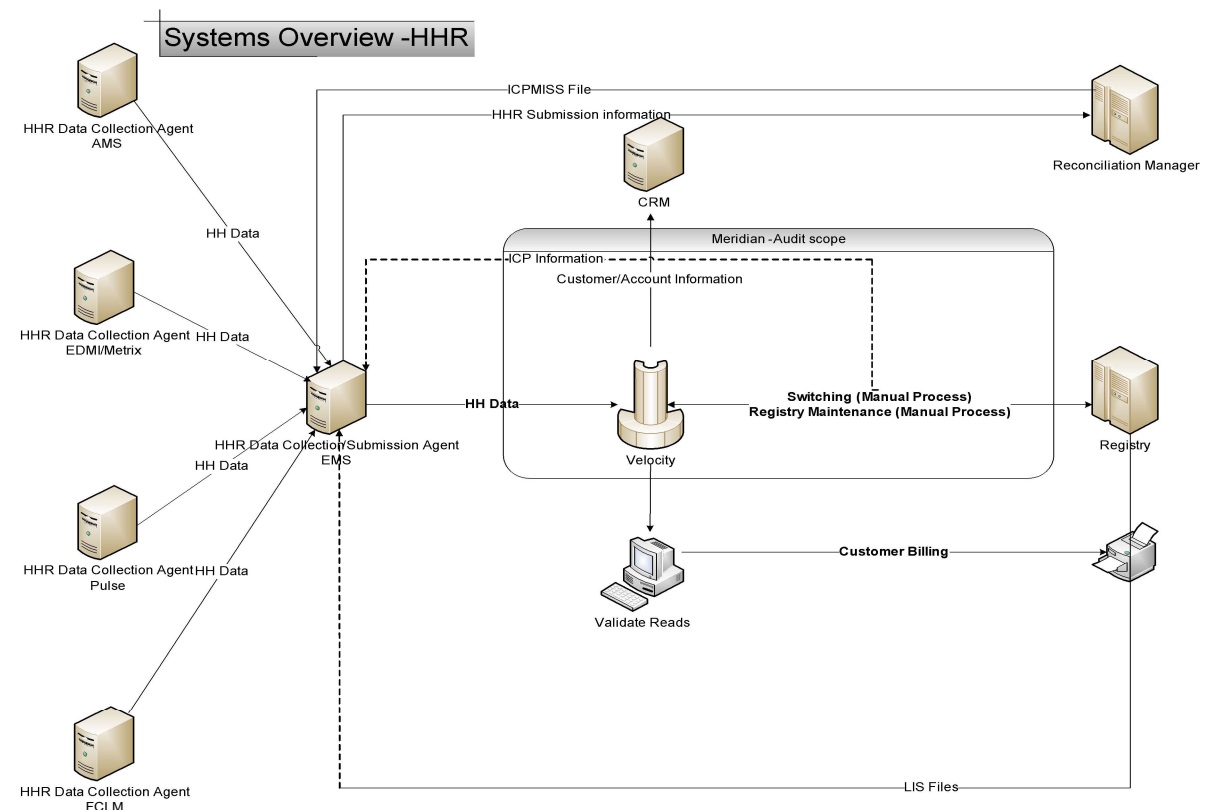
The use of agents was discussed with Meridian.

Audit commentary

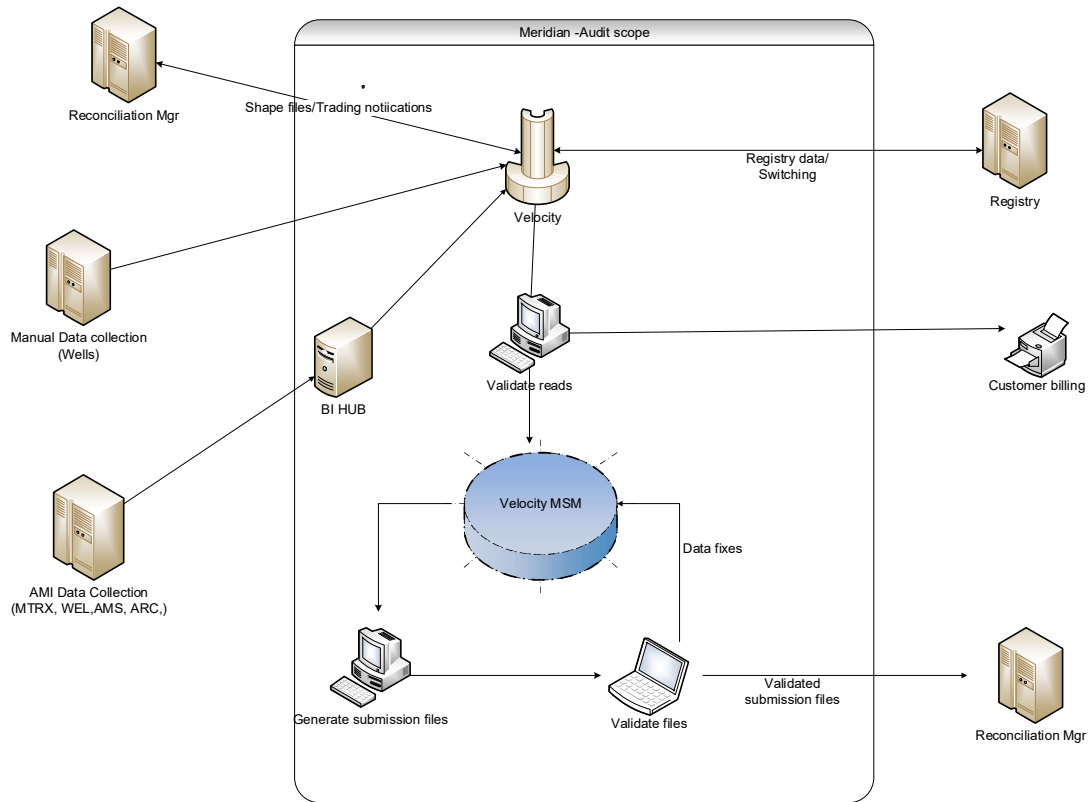
Meridian understands that they remain responsible for meeting their code obligations where agents are used. The relevant agents are identified in **section 1.9**. The agents' compliance was assessed as part of this audit, and their agent audits.

1.5. Hardware and Software

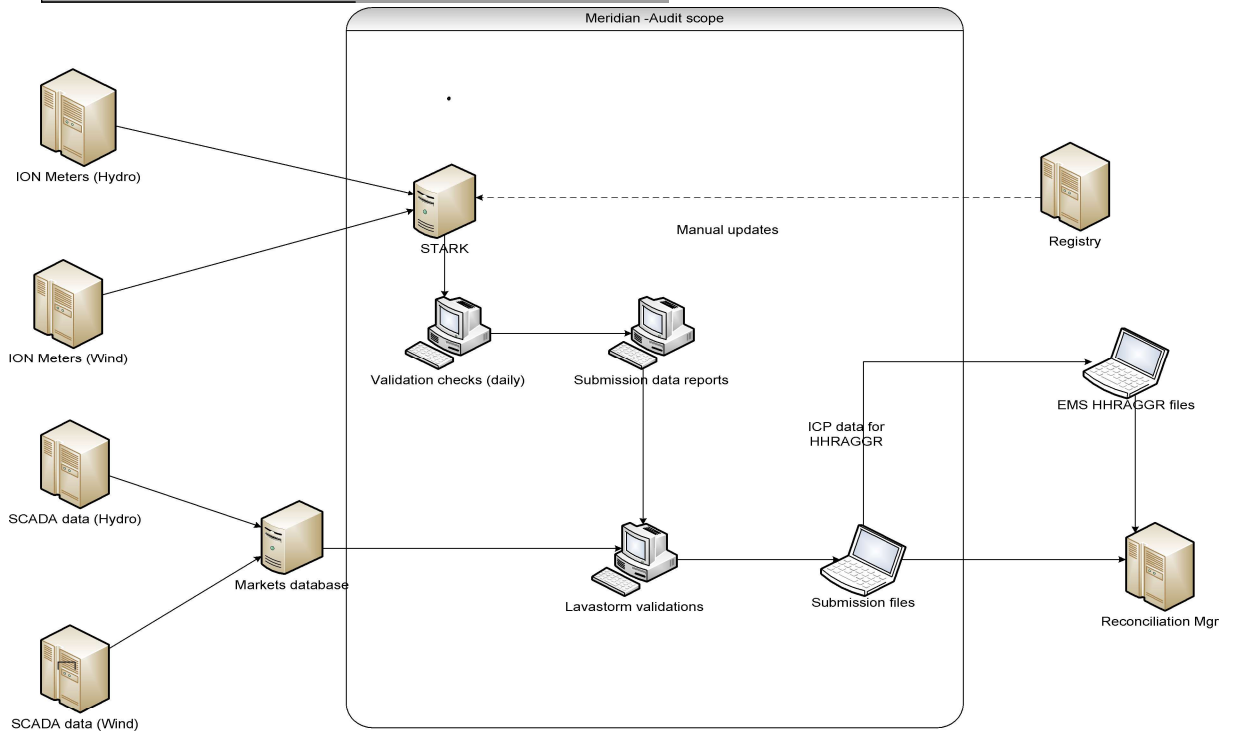
Meridian's system configurations are shown below.



Systems Overview -NHH



Systems Overview -Generation



1.6. Breaches or Breach Allegations

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

1.7. ICP Data

The active ICPs from Meridian's registry list are summarised by meter category in the table below. 2,384 of the 2,387 active ICPs with no metering category are unmetered. The MEP has accepted a nomination for the other three ICPs; asset data has been entered on the registry for one, the other two are awaiting data update.

Metering Category	(2018)	(2017)	(2016)
1	215,064	208,967	209,799
2	8,234	7,893	7,442
3	751	692	660
4	313	273	265
5	54	57	54
9	993	891	958
Blank	2,387	1,929	2,177

Status	Number of ICPs (2018)	Number of ICPs (2017)	Number of ICPs (2016)
Active (2,0)	227,796	220,702	221,355
Inactive – new connection in progress (1,12)	377	378	341
Inactive – electrically disconnected vacant property (1,4)	4,986	5,111	4,793
Inactive – electrically disconnected remotely by AMI meter (1,7)	29	20	18
Inactive – electrically disconnected at pole fuse (1,8)	5	2	1
Inactive – electrically disconnected due to meter disconnected (1,9)	3	0	0
Inactive – electrically disconnected at meter box fuse (1,10)		0	0
Inactive – electrically disconnected at meter box switch (1,11)	1	0	0
Inactive – electrically disconnected ready for decommissioning (1,6)	127	168	385

Inactive – reconciled elsewhere (1,5)	4	6	4
Inactive – code not recognised (1,0)	1	1	0
Decommissioned (3)	35,405	33,779	31,821

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.

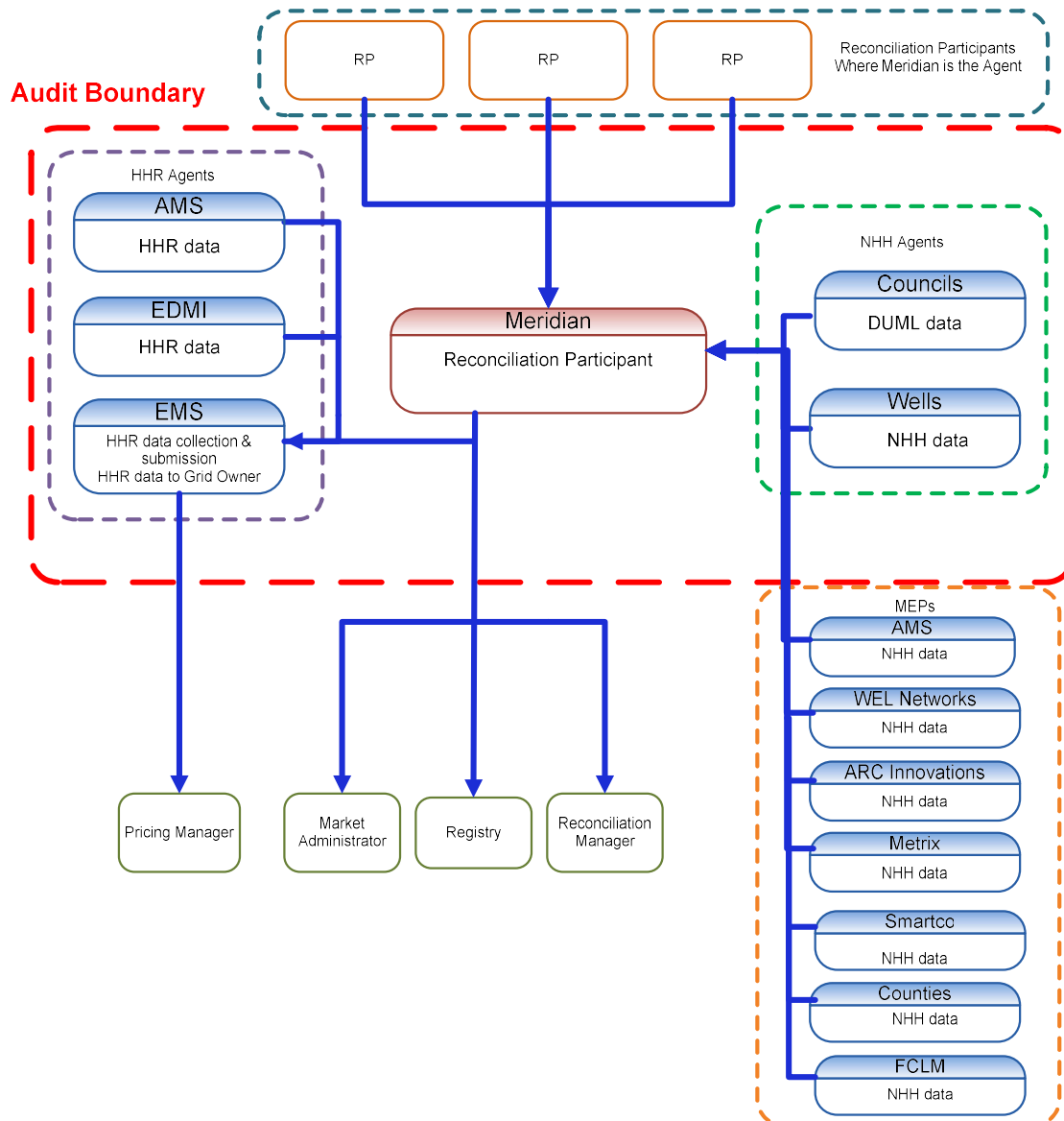
The audit was carried out at Meridian's premises in Christchurch on 29-31 October 2018.

The table below shows the tasks under clause 15.38 of part 15 for which Meridian requires certification, and agents who assist with those tasks. Wells has been Meridian's NHH data agent since 01/09/17. Datacol and Delta have not provided NHH readings during the audit period, they ceased to read Meridian meters from 30/09/17.

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks	MEPs Providing AMI data
(a) - Maintaining registry information and performing customer and embedded generator switching		
(b) – Gathering and storing raw meter data	Wells (NHH) AMS (HHR and manual HHR) EMS (HHR) EDMI (HHR)	AMS Arc Counties Power FCLM Metrix Smartco WEL Networks
(c)(iii) - Creation and management of volume information	Councils (DUMI data) EMS (HHR)	
(d) – Calculation of ICP days		
(da) - delivery of electricity supplied information under clause 15.7		

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks	MEPs Providing AMI data
(db) - delivery of information from retailer and direct purchaser half hourly metered ICPs under clause 15.8		
(e) – Provision of submission information for reconciliation		
(f) - Provision of metering information to the Grid Owner	EMS	

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



1.10. Summary of previous audit

Meridian provided a copy of their previous audit report conducted in December 2017 by Rebecca Elliot and Tara Gannon of Veritek Limited. The summary tables below show the status of the non-compliances, recommendations, and issues raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Relevant information	2.1	11.2 & 15.2	Some errors found in registry data and ICP days discrepancies.	Still existing. Refer to section 2.1.
Metering certification	2.10	10.33(2)	2 ICPs certified later than 5 days after energisation.	Still existing. Refer to section 2.11.
Changes to registry information	3.3	10 Schedule 11.1	Registry information not updated within 5 business days of the event.	Still existing. Refer to section 3.3.
Provision of information to the registry	3.5	9 Schedule 11.1	Registry information not updated within 5 business days of the event.	Still existing. Refer to section 3.5.
ANZSIC codes	3.6	9 (1)(k) Schedule 11.1	Incorrect ANZSIC code recorded for 2 ICPs.	Still existing. Refer to section 3.6.
Changes to unmetered load	3.7	9 (1)(f) Schedule 11.1	Some incorrect unmetered loads populated incorrectly to the registry.	Cleared. Refer to section 3.7.
Management of “active” status	3.8	17 Schedule 11.1	Three ICPs taken to active for the incorrect date.	Still existing. Refer to section 3.8.
Management of “inactive” status	3.9	19 Schedule 11.1	One ICP at the incorrect status.	Still existing. Refer to section 3.9.
Switching	4.3	5 Schedule 11.3	CS file content incorrect.	Still existing. Refer to section 4.3.
	4.10	11 Schedule 11.3	CS file content incorrect.	Still existing. Refer to section 4.10.

Subject	Section	Clause	Non-compliance	Status
	4.11	12 Schedule 11.3	Customer photo reads accepted as actual reads for switching purposes.	Cleared. Refer to section 4.11.
	4.17	11.15AA to 11.15AB	Two switch save protected ICPs saved prior to the switch completing.	Cleared. Refer to section 4.17.
Unmetered threshold exceeded	5.3	10.14 (5)	Seven ICP with annual consumption over 6,000 kWh.	Still existing. Refer to section 5.3.
Distributed unmetered load	5.4	11 Schedule 15.3, Clause 15.37B	Distributed unmetered databases not accurate.	Still existing. Refer to section 5.4.
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.	Still existing. Refer to section 6.1.
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.	Still existing. Refer to section 6.6.
Derivation of meter readings	6.6	5 Schedule 15.2	Datacol does not identify and report phase failure to Meridian.	Cleared, but new non-compliance has been identified in this section.
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	Some ICPs were not read during the period of supply.	Still existing. Refer to section 6.8.
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.	Cleared. Refer to section 6.10.

Subject	Section	Clause	Non-compliance	Status
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: <ul style="list-style-type: none"> a defective meter on ICP 000511127NRD5B an incorrect multiplier on 3407005500CHD0F. 	Still existing. Refer to section 8.1.
Identification of readings	9.1	3(3) Schedule 15.2	Two actual readings were labelled as estimates on 14/09/2017 for ICP 0001750534TGF88. One actual reading was not entered.	Still existing. Refer to section 9.1.
NHH metering information data validation	9.5	16 Schedule 15.2	Zero consumption not monitored for all ICPs.	Still existing. Refer to section 9.5.
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.	Still existing. Refer to section 9.6.
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. One meter installed for one day was not recorded in Velocity, which resulted in one ICP day not being reported.	Still existing. Refer to section 11.2.
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information. One meter installed for one day was not recorded in Velocity, which resulted in one day of consumption not being reported.	Still existing. Refer to section 11.4.
Permanence of meter readings for reconciliation	12.8	4 of Schedule 15.2	Some estimates not replaced at R14.	Still existing. Refer to section 12.8.
Forward estimate process	12.12	6 of Schedule 15.3	The accuracy threshold was not met for all months and revisions.	Still existing. Refer to section 12.12.

Subject	Section	Clause	Non-compliance	Status
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.	Still existing. Refer to section 12.13.
Historical estimate reporting to RM	13.4	10 of Schedule 15.3	Historic estimate thresholds were not met for some revisions.	Still existing. Refer to section 13.3.

Subject	Section	Clause	Recommendation	Status
Energisation of an ICPs	3.5	9 Schedule 11.1	Identify any ICPs that are at “inactive-new connection in progress” status that have an initial energisation date populated.	Cleared. Refer to section 3.5.
			Update HHR ICPs to active as soon as all details are known to Meridian.	Cleared. Refer to section 3.5.
Changes to unmetered load	3.7	9(1)(f) of Schedule 11.1	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.	Underway, unmetered load discrepancies are investigated. Refer to section 3.7.

Subject	Section	Clause	Issue	Status
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.	No response was received from the EA on this issue.

Subject	Section	Clause	Issue	Status
Historical estimate process	12.11	4 of schedule 15.3	<p>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.</p> <p>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.</p>	No response was received from the EA on this issue.

2. OPERATIONAL INFRASTRUCTURE

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

Code reference

Clause 10.6, 11.2, 15.2

Code related audit information

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

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

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

Audit observation

The process to find and correct incorrect information was examined. The registry list file as at 31/8/18 was examined to confirm that information was correct and not misleading. The registry validation process was examined in detail in relation to the achievement of this requirement.

Audit commentary

Notification files received from the registry are loaded into Velocity and directed to work queues, where they are actioned daily.

Velocity data is validated against the registry three times each month, including:

- a full validation of trader and distributor maintained fields at the beginning of each month; there are typically less than 500 differences at field level each month, which are worked through by the reconciliation team and many of the discrepancies are timing differences
- validation of fields used for reconciliation submission aggregation prior to the initial and wash up submissions being created.

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

Meridian's controls are generally sound with regard to the identification and correction of information. This audit identified some ICPs with incorrect status dates and ANZSIC codes.

Analysis of the list file returned the following findings:

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
ICP at status "new connection in progress" (1,12) with an initial energisation date populated by the Distributor	14	16	22	11 have since been updated to active on the registry. The remaining three are discussed in section 3.9 .

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
Active date variance with initial electrical connection date	94	81	39	These are discussed in detail in section 3.8.
Incorrect status or status date	15	-	-	These are discussed in detail in section 3.9.
Submission flag discrepancies	0	2	5	Compliant
Distributed Generation profile not recorded on the registry	0	0	58	74 ICPs with generation indicated by the distributor and no generation profile were identified. For the four ICPs with generation metering installed the profile differences were due to timing, and for the other 70 ICPs Meridian is confirming whether generation is installed and arranging generation metering and profile changes where required. This is discussed further in section 6.1.
Active with blank ANZSIC codes	-	-	1	Compliant
Meter cat 3 or known commercial site with residential ANZSIC code	-	2	2	Compliant
Active with incorrect ANZSIC code applied	1	2	8	See section 3.6.
Active with ANZSIC "T999" not stated	1	12	5	
Active with ANZSIC "T994" don't know	6	29	48	
Active with ANZSIC "T995" refused to answer	2	-	-	
Active with ANZSIC "T997" response unidentifiable	1	-	-	
Active with ANZSIC "T999" not stated	1	-	-	

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
Active ICPs with blank MEP and no MEP nominated and UML =N	-	-	1	All ICPs with a blank MEP had an MEP nomination.
ICPs with Distributor unmetered load populated but Meridian has none	4	86	90	One is a metered supply. The remaining three are unmetered DUML ICPs. See sections 3.7 & 5.4.
ICPs with standard unmetered load flag Y but load is recorded as zero	93	2	89	All 93 are Tsunami sirens or residual load ICPs and are correctly recorded with 0 daily unmetered kWh. See section 3.7.
ICPs with incorrect shared unmetered load	-	-	10	Compliant
ICPs have UML flag N and no shared unmetered load but Distributor field shows shared unmetered load.	-	-	-	Compliant

The 2017 audit found ICP 0007161412RN860 had incorrect profiles recorded on the registry for 05/02/2017 and 06/02/2017 following a downgrade from HHR to NHH. The profiles on the registry have now been corrected.

Some corrections identified in the last audit have still not been made, specifically:

- ss detailed in **section 6.3**, incorrect profiles have been corrected but not for all of the expected days
- as detailed in **section 11.2**, the two ICPs recorded with incorrect ICP days have not been corrected; for one, submission was allocated incorrectly, and for the other, a day's submission was missing.

As reported in the last audit report, the ICP 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 start meter reads not being entered into Velocity, resulting in consumption and ICP days missing until the first actual read is gained, and site upgrades and downgrades resulting in one ICP day being omitted per ICP.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: 11.2 & 15.2 From: 01-Dec-17 To: 31-Oct-18	Some errors found in registry data. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as they identify most of the errors but not all. The audit risk rating is low as the discrepancies identified will only have a minor effect on submission.		
Actions taken to resolve the issue		Completion date	Remedial action status
Refer to comments in the relevant sections of this report.		N/A	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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 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) and WEL Networks via SFTP. All other AMI meters are read manually by Wells.

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

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

- AMS
- Arc
- Counties Power
- Metrix
- Smartco
- WEL Networks.

Generation

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

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

Audit commentary

HHR

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

NHH

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

Generation

The Stark system retrieves meter information from the generation meters every half hour, and data is also received via SCADA. Stark sends an automated email to the reconciliation team where data is missing, or the number of seconds recorded does not match the expected number for the half hour. The internet time source was changed in February 2018. An error occurred with this on the 19/2/18. As detailed in **section 6.5**, I confirmed that the missing data was retrieved and flowed through to submission correctly.

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

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

Audit outcome

Compliant

2.4. Audit trails (Clause 21 Schedule 15.2)

Code reference

Clause 21 Schedule 15.2

Code related audit information

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

The audit trail must include details of information:

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

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

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

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

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

- *an activity identifier (clause 21(4)(a))*
- *the date and time of the activity (clause 21(4)(b))*
- *the operator identifier (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 subclause (1) must be expressed to be for the benefit of the Authority for the purposes of the Contracts (Privacy) Act 1982, and not be able to be amended without the consent of the Authority (clause 11.15B(2)).

Audit observation

I reviewed Meridian's current terms and conditions.

Audit commentary

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

Audit outcome

Compliant

2.9. Connection of an ICP (Clause 10.32)

Code reference

Clause 10.32

Code related audit information

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

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

Audit observation

The new connection process was examined in detail to evaluate the strength of controls. The registry list as at 31/8/18 and event detail report for 1/1/18 to 2/9/18 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.

Work queues are used to manage the new connections process for NHH. HH new connections are managed manually, and closely monitored.

Audit outcome

Compliant

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

Code reference

Clause 10.33(1)

Code related audit information

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

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

Audit observation

The new connection process was examined in detail. The registry list as at 31/8/18 and event detail report for 1/1/18 to 2/9/18 were analysed to confirm process compliance and that controls are functioning as expected.

Audit commentary

Review of the list and event detail reports identified a temporary connection for ICP 0000158580CK0CC. The ICP was briefly livened for testing and then disconnected. I confirmed that Meridian was recorded as the responsible trader and a meter was installed at the time of the temporary electrical connection.

Audit outcome

Compliant

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

Code reference

Clause 10.33A(1)

Code related audit information

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

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

Audit observation

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

The registry list as at 31/8/18, meter installation details report, and event detail report for 1/1/18 to 2/9/18 were analysed to confirm process compliance and that controls are functioning as expected.

Audit commentary

The new connection process ensures that an MEP is nominated.

Certification details were checked for the 1,925 new connections and 2,607 reconnections where certification details were available on the meter installation details or event detail report.

39 (2.0%) of the 1,925 new connections were not certified within five business days of electrical connection on the registry.

- 25 ICPs were initially unmetered builder's temporary supplies and were certified once the meter was installed.
- Seven ICPs were recorded with incorrect active dates which have now been corrected. I confirmed that certification for these ICPs was within five business days of the correct active date. Corrections to active dates are discussed further in **section 3.8**.
- Seven ICPs genuinely had late certification, generally because the metering could not be certified because of low load and the MEP needed to make a second visit to certify. Late certification for these ICPs is recorded as non-compliance below.

115 (4.4%) of the 2,607 reconnections checked did not have current full certification at the time that they were reconnected. A sample of 20 of these ICPs were checked.

- Six of the reconnections were status corrections, and the ICPs were not physically reconnected without certification.
- 14 reconnections did not have valid full certification at the time of reconnection, and one of these was self-reconnected.

During the audit period Meridian became aware of the requirement to ensure that all ICPs are fully certified on reconnection. They are identifying all reconnected ICPs without full certification and are working with their MEPs to arrange certification for reconnected sites. Certification is an MEP responsibility but their delay in the certifying these sites has caused Meridian to be non-compliant.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.11 With: Clause 10.33A From: 29-Sep-17 To: 27-Aug-18	Seven ICPs were certified later than 5 days after electrical connection. 109 ICPs which had expired and/or interim certification were reconnected. Potential impact: Low Actual impact: None Audit history: Three times Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	The controls are rated as moderate. The new connection process has good controls to ensure that MEPs are in place for new connections. Meridian is strengthening their controls for reconnections to ensure that reconnections requiring certification are identified and recertified by the MEPs. The audit risk rating is low as a small proportion of ICPs were affected.

Actions taken to resolve the issue	Completion date	Remedial action status
<p>We have good controls in place to ensure meters are certified at the time of initial electrical connection when possible – situations where load is too low to certify are infrequent and processes are in place to ensure certification is completed when it is possible.</p> <p>As reported we have implemented a new process to notify MEPs of any ICPs that have been reconnected that require recertification.</p> <p>We note that in these circumstances it will be difficult to comply with the timeframe of 5 BD due to customer contractual requirements that notice is given at least 10BD before access is required for this purpose.</p>	<p>N/A</p> <p>Oct 18</p>	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	

2.12. Arrangements for line function services (Clause 11.16)

Code reference

Clause 11.16

Code related audit information

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

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

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

2.13. Arrangements for metering equipment provision (Clause 10.36)

Code reference

Clause 10.36

Code related audit information

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

Audit observation

The process to ensure an arrangement is in place with the metering equipment provider before an ICP can be created or switched in was checked, and a check of controls within 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 manager about each ICP at which it trades electricity in accordance with Schedule 11.1.

Audit observation

The new connection process was examined in detail. The registry list as at 31/8/18 and event detail report for 1/1/18 to 2/9/18 were analysed to evaluate the updating of the registry in relation to new connections. This clause links directly to **section 3.5** below. The findings for the timeliness of updates 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 manager about an ICP changes, the trader must provide written notice to the registry manager of the change no later than five business days after the change.

Audit observation

The process to manage status changes is discussed in detail in **sections 3.8** and **3.9** below.

In this section I have examined the registry list as at 31/8/18 and event detail report for 1/1/18 to 2/9/18. I used the typical case methodology examining a sample of ten ICPs that were updated more than 30 days after the event date for each of the event type updates.

The process to manage MEP changes was examined, and I used the typical case methodology to examine 20 nominations made more than 30 days after the event date. The list file was examined to identify any active ICPs with no MEP recorded, or with meter category nine recorded and the UML flag set to "N".

The process to manage trader updates not relating to MEP nominations or NTs was examined. 20 late updates over 30 days were examined to determine why they were late.

Audit commentary

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

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Status updates						
Change to active - reconnections	2015	2,731	1,672	1,059	36.0	61%
	2016	3,845	2,808	1,037	12.0	73%

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
	2017	3,059	2,436	623	12.9	80%
	2018	2,675	2,226	449	9.8	83.2%
Change to de-energised vacant (1,4)	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%
	2018	4,451	4,319	132	5.0	97%
Change to reconciled elsewhere (1,5)	2018	1	-	1	300	0%
Change to de-energised ready for decommissioning (1,6)	2015	1,459	619	840	30.2	42%
	2016	505	246	259	27.7	49%
	2017	218	80	138	74.6	37%
	2018	1,033	635	398	32	61.5%
Change to electrically disconnected at pole fuse (1,8)	2018	1	-	1	10	0%
Change to electrically disconnected due to meter disconnected (1,9)	2018	1	-	1	42	0%
Trader updates						
MEP nominations	2017	2,887	1,869	1,081	2.7	65%
	2018	9,558	8,946	612	2.0	94%
Trader updates (excluding MEP nominations and NT updates)	2018	10,729	5,650	5,079	16.5	53%

Status updates

Reconnections

Service requests are managed using the queue management functionality in Velocity. The field services team then works these queues to ensure that all service requests are resolved. The service level agreement in place requires that paperwork be returned to Meridian within two business days of completion.

Reconnection paperwork is provided via SFTP and loaded into Velocity. The reconnection is automatically processed using the information from the paperwork and directed to a work queue if human intervention is required.

The percentage of reconnections updated within five days has improved from 80% to 83.2%. There were 68 reconnected ICPs where the notification date was more than 30 business days. This is trending down year on year from 409 in 2015, 274 in 2016, and 173 in 2017. A sample of ten updates to active more than 30 business days after the event date were checked to determine the reason for the late update:

- six ICPs were self-reconnected without authorisation, and the status was updated when consumption was identified
- three ICPs were reconnected on switch in, or switched in with an incorrect status; the delays were caused by waiting for the switch to complete, or confirming the correct status
- one update was delayed by late paperwork, and a delay in processing the paperwork once received.

Disconnections (excluding ready for decommissioning status)

Inactive statuses are only applied once Meridian's approved contractor has confirmed that the ICP has been disconnected. As for reconnections, service requests are managed using the Velocity work queues and paperwork is provided via SFTP and loaded into Velocity. The disconnection is automatically processed using the information from the paperwork and directed to a work queue if human intervention is required.

Meridian follows a vacant disconnection process. As well as attempting to contact the occupier, Meridian tries to find and contact the property owner (if different).

Day	Process
1	A letter is sent to the occupier, encouraging them to open an account.
7	A reminder letter is sent to the occupier.
14	AMI ICPs with consumption under a set threshold (5 kWh for residential and 10 kWh per day for commercial) are disconnected. AMI ICPs with consumption over the set threshold are left connected. ICPs with non-AMI metering are also left connected as there is usually insufficient reading information to confirm they are unoccupied.
21	A final letter is sent to the occupier, requesting they urgently contact Meridian.
28	The ICP is referred to external investigators who attempt to contact the customer or landlord. Depending on the outcome of the investigation the ICP will be disconnected with the landlord or owner's consent or will remain connected.

The percentage of disconnections (excluding ICPs ready for decommissioning) updated within five days is 97%, consistent with 2017. There were 42 ICPs that were not updated within 30 days of the effective date. A sample of ten of these ICPs were checked:

- five updates were delayed while Meridian confirmed the correct status; in some cases the disconnection was carried out by another party following a storm or fire, in other cases Meridian was waiting for confirmation of whether the ICP was disconnected or to be decommissioned
- five updates appeared delayed due to a process work around as service orders must be raised against an active customer and where there is no active customer on the service order date, a new “revenue assurance” customer is created for this purpose; creation of the active customer sends an active record to the registry, which needs to be replaced with a correction back to inactive status.

All late updates to reconciled elsewhere (1,5), electrically disconnected at pole fuse (1,8) and electrically disconnected due to meter disconnected (1,9) were checked. All were delayed while Meridian confirmed the correct status and date, or whether the ICP was reconciled elsewhere.

Disconnections (ready for decommissioning)

The decommissioning process varies from network to network with some advising Meridian to move the ICP to “ready for decommissioning” status after the event, and Meridian moving the ICP to “ready for decommissioning” before the event for others. Where the network advises that the site has already been decommissioned, updates are more likely to be late.

The percentage of updates to “inactive ready for decommissioning” updated within five days is 61.5%, an improvement from 37% in 2017. The lower level of compliance for 2017 was in part caused by decommissioning of some earthquake damaged ICPs on the Orion network. Now, where an Orion ICP requires decommissioning Orion updates the address on the Registry, and Meridian runs a weekly registry report to identify the affected ICPs and update their statuses.

There were 102 ICPs that were not updated within 30 days of the effective date. A sample of ten of these ICPs were checked and found to be caused by delays in being advised that the ICP was to be decommissioned or had been decommissioned.

Change of MEP

The event detail analysis identified 9,558 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. I found 94% of the nominations were sent within five business days, a significant improvement from 65% found in the last audit. Meridian now nominates the MEP earlier in the meter change process.

20 MEP nominations completed more than 30 days after the event date were examined:

- nine were delayed while Meridian confirmed the correct metering and MEP, seven of these MEP changes physically occurred prior to Meridian’s gain date
- ten related to changes where the metering installation was delayed, and the MEP required nomination from an earlier date
- one related to a change of MEP from TPCO to SMCO, where Meridian received late advice of the change from the MEP.

HHR MEP nominations

The MEP nomination process for HHR ICPs is manual and managed directly on the registry.

Nominations are issued at the time of the service request to install the meter. Because the MEP is known no MEP rejections have been received.

NHH MEP nominations

Most bulk AMI meter roll outs were completed prior to this audit period. Bulk roll outs are carefully managed and tracked to ensure that the correct MEP is nominated.

Controls are in place to improve the timeliness of MEP nominations, including:

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

Review of the registry list found that for all active ICPs with no MEP recorded and the unmetered flag set to no, an MEP nomination had been made and accepted.

Eight ICPs with meter category nine and the unmetered flag set to no were checked. Two of the ICPs are in the process of being decommissioned, and four ICPs have accepted MEP nominations and are waiting for the MEP to update the meter details. The remaining two ICPs are still being investigated:

- 0005965470RN796 is still inaccessible following the Christchurch earthquakes and the status of the metering cannot be confirmed
- 0198679831LC926 is being investigated, the meters have been removed on the registry and it is believed to be part of an ICP consolidation, with another metered ICP is present at the same address.

Following the 2017 audit, the Authority expressed concerns about status updates and MEP nominations still being delayed by issues following the Christchurch earthquakes. Most post-earthquake issues have been resolved but there are still some sites that are inaccessible. A daily report of vacant ICPs which Meridian cannot obtain access to is generated, and the report is reviewed every two months. There were 152 ICPs on this list for 30/10/18. I checked a sample of five ICPs on the list and noted that Meridian was taking action to attempt to gain access including regularly attempting access, working with investigators to try to contact landlords to arrange access, and working with networks to try to arrange safe access when possible for earthquake affected ICPs.

Trader updates

5,067 trader updates (excluding MEP nominations and NT updates) were made late. I reviewed a sample of 20 events which occurred over 30 days after the event date and found they all related to corrections or followed backdated withdrawals.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.3 With: 10 Schedule 11.1 From: 03-Jan-18 To: 04-Sep-18	Registry information not updated within 5 business days of the event. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls in this area are robust but late notification from other areas of the business or networks shows there is room for improvement. The audit risk rating is low as overall 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. I found some late updates often related to data corrections, which improved overall data accuracy.		
Actions taken to resolve the issue		Completion date	Remedial action status
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We will continue with our existing controls that ensure Registry information is updated within 5 business days where this is within our control.		Ongoing	

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)):*
 - o *arrange for a final interrogation to take place prior to or upon meter removal (clause 11.18(3)(a)); and*
 - o *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 31/8/18, 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 had the unmetered flag set to no, and these were examined.

ICP Decommissioning

The process for the decommissioning of ICPs was examined. A selection of 13 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.

A diverse sample of 13 decommissioned ICPs connected to nine different networks were examined. In all cases Meridian had advised the MEP that the ICP was to be decommissioned, or the MEP had advised Meridian where the ICP was demolished without Meridian’s knowledge. Reads were obtained prior to decommissioning for 12 of the ICPs, and for one ICP the site was demolished without Meridian’s knowledge and Meridian completed a site visit to attempt to gain a read.

Audit outcome

Compliant

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

Code reference

Clause 9 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

The new connection process was examined in detail.

The registry list as at 31/8/18 and event detail report for 1/1/18 to 2/9/18 were analysed to determine the overall performance for that period.

I used the typical case methodology to examine the ten late updates over 30 business days for status changes to "active" and "new connections in progress".

Audit commentary

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

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
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%
	2018	1,929	1,766	163	2.7	92%
Change to de-energised new connection in progress (1,12)	2015	2,837	2,818	19	0.6	-
	2016	998	889	109	2.14	-
	2017	1,918	1,911	7	0.5	99.6%
	2018	3,161	3,071	90	3	97.1%

NHH new connections

Velocity's work flow processes are used to manage NHH new connection service requests. The field services team works through service request work queues to ensure that jobs are completed.

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

The timeliness of status updates to active for new connections has improved, following resolution of some process issues that affected part of the last audit period. 92% of status updates to "active" for new connections occurred within five business days. All 16 new connections updated 30 days or more after the event date were examined:

- two appeared late because the status date was corrected at a later date
- two were delayed by service requests needing to be cancelled and re-raised, or confusion about whether the connection had already been completed
- 12 were delayed by late or incomplete paperwork.

A sample of five new connections updated between 20-30 days were checked and found to have been delayed by late paperwork.

The 2017 audit recommended that Meridian check for ICPs with "inactive new connection in progress" status with an initial electrical connection date populated. Review of the registry list identified 14 ICPs with "new connection in progress" status that had an initial electrical connection date recorded. All were timing differences and had been updated to "active" effective from the initial electrical connection date by the time of the on-site audit.

HHR New Connections

The HHR new connection process was examined. As found with other traders, this process is largely manual due to the complexity of such connections. The progress of HHR new connections is managed closely.

As recommended in the 2017 audit, Meridian now updates the status as soon as they confirm that the ICP is active and metering is installed, instead of waiting for metering details to be updated on the registry.

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

- one appeared late because the status date was corrected
- three were delayed by late paperwork.

New Connections 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).

All 90 status updates over five business days after the event date were checked; 83 were more than five business days after the active date. Analysis of ten ICPs updated more than five business days after the event date found:

- two ICPs were backdated due to Meridian's correction process where rather than reversing the incorrect active date, the "new connections in progress" and "active" events are replaced and appear to be backdated; the affected ICPs were taken to the "new connection in progress" status in the first instance and are therefore compliant
- Eight were backdated new connections and were delayed by a backdated update to "ready" status.

Analysis of the registry list identified ICP 1001297417UN40A which had been at "new connection in progress" status for 21 months. I confirmed that the status was correctly applied. The connection is delayed due to land title and resource consent issues but is expected to go ahead.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.5 With: 9 Schedule 11.1</p> <p>From: 06-Dec-17 To: 30-Aug-18</p>	<p>Some registry information was not updated within 5 business days of the event.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are rated as moderate, in most cases the registry was updated on time. Where information was late, circumstances beyond Meridian's direct control had contributed to the late update.</p> <p>The audit risk rating is low as the impact to the market of the ICPs not being updated within five business days is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>As recommended in last year's audit we have implemented regular reporting to monitor IED dates populated by distributors.</p> <p>We have implemented automated job closure functionality which should reduce instances of incorrect active dates caused by human error.</p> <p>We will continue with our existing controls that ensure Registry information is updated within 5 business days where this is within our control.</p>		<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>	

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

Code reference

Clause 9 (1(k) of Schedule 11.1

Code related audit information

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

Audit observation

The process to capture and manage ANZSIC codes was examined.

The registry list as at 31/8/18 was reviewed to check ANZSIC codes, including all active ICPs with codes in the T99 series. All ICPs with T99 series ANZSIC codes were checked.

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

- a diverse sample of 40 active ICPs across 12 different ANZSIC codes which made up more than 0.2% of the total ICPs; and
- a typical sample of 60 active ICPs with residential ANZSIC codes.

Audit commentary

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

A report is run approximately every six months to check and update any ICPs with T9 series codes; this was last done in July 2018. The registry list is also occasionally checked for ANZSIC code anomalies.

The list file identified ten ICPs with unknown ANZSIC codes, a decrease from 41 ICPs found during the previous audit:

Code	Number of active ICPs 2018	Number of active ICPs 2017	Comments
Active with ANZSIC "T999" not stated	1	12	Cleared. Decommissioned effective from 30/8/18.
Active with ANZSIC "T994" don't know	6	29	Correct. ICPs are all vacant commercial premises, and the correct code cannot be confirmed.
Active with ANZSIC "T995" refused to answer	2	-	Still existing. ICPs 0000052673NTFC1 and 0000054581NT990 are occupied but Meridian has been unable to confirm the correct code to date. The unknown ANZSIC codes appear not to have been followed up with the customer.
Active with ANZSIC "T997" response unidentifiable	1	-	Cleared. Corrected to R911.
Total	10	41	

No ICPs with a meter category of 3 or above were recorded with a residential ANZSIC code.

I checked 100 ANZSIC codes by comparing them to Google streetview information. Where the codes were inconsistent with Google streetview, I checked the customer account details to confirm the code. I found:

- 76 ICPs had correct ANZSIC codes applied based on the Google streetview information or customer information held by Meridian
- four ICPs had their ANZSIC codes corrected during the audit.
- for 19 ICPs the Google streetview information was inconclusive and I could not prove or disprove the ANZSIC codes applied
- ICP 0000002299CP284 switched out with an incorrect ANZSIC code. G426 (department stores) was applied, but G411 (supermarket and grocery stores) was a better fit.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.6 With: 9 (1(k) Schedule 11.1 From: 01-Dec-17 To: 31-Oct-18	Two active occupied ICPs had an unknown ANZSIC code. One ICP had an incorrect ANZSIC code but is no longer supplied by Meridian. Potential impact: None Actual impact: None Audit history: Multiple Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Reporting is in place to identify discrepancies, and the control rating is strong. 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 ANZSIC code for ICP 0000052673NTFC1 has been confirmed and updated ICP 0000054581NT990 is now Inactive – Vacant.		04/12/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We have controls in place to review unknown ANZSIC codes periodically and we will continue with this.		Ongoing	

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

Code reference

Clause 9(1)(f) of Schedule 11.1

Code related audit information

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

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

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

Audit observation

The process to manage unmetered load was examined. The list file as at 31/08/18 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 does not match with the Distributor's figure (where it is possible to calculate this if the Distributor is using the recommended format) and the variance is greater than 1.0 kWh per day. 1.0 kWh per day was chosen as a sample only; this does not indicate compliance is achieved if an error is found that is less than 1.0 kWh per day.

Audit commentary

Meridian has processes in place to validate unmetered load.

- Any unmetered load that switches in is allocated to the reconciliation team's work queue for checking.
- The daily capacity report is reviewed monthly. This report compares the trader daily kWh recorded on the registry and the daily kWh recorded in the Velocity life cycle, which is used for billing purposes. The registry value is applied for settlement and differences are investigated and resolved by the reconciliation team monthly. Meridian is working with Wellington Electricity to ensure that shared unmetered load is added for 0001409077UN5D7 and in the meantime 0.71 kWh per day is recorded on the registry and for submission.
- Where a distributor changes unmetered load information on the registry, a notification file is sent and automatically loaded into Velocity. Changes to unmetered load details are not directed to a workflow for review; these will be identified through the daily capacity report checks. Orion also normally emails Meridian if unmetered load details for any of their ICPs have changed.
- Periodically a report is generated to compare all distributor and trader unmetered load fields on the registry. The notes are compared to ensure that the trader and distributor details are consistent, and also consistent with the daily unmetered kWh which Meridian has calculated. This report was last run in September 2018.

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

Meridian has 3,607 ICPs with standard unmetered load indicated. The following issues were found by checking the registry list file:

- Four 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. ICP1002044456LCD5 is confirmed as a metered supply and therefore the Distributor has unmetered load incorrectly recorded. The remaining three ICPs relate to NZTA Northland DUML ICPs. These being reconciled using the Northpower database information therefore the UML

flag is incorrectly set. This is detailed further in **section 5.4** and recorded as non-compliance in **section 2.1**.

- 93 ICPs have zero populated in the daily unmetered kWh field. 57 of these are Tsunami sirens, and the daily unmetered kWh are recorded as zero. 35 are residual load ICPs for embedded networks and daily unmetered kWh is correctly recorded as zero. ICP 0000100018WP6F5 appears to be set up as a residual load ICP for an embedded network, but shows network type GN instead of SB. The unmetered load details for the ICP are correct; it is a residual load ICP for Kiwirail and is settled by difference but has not been set up as an embedded network. No exemption is in place allowing settlement by subtraction, and this is recorded as non-compliance in **section 6.1**.

The distributor's field was populated in the correct format for 1,706 ICPs with standard unmetered load. The daily unmetered kWh from the distributor's field was within ± 1 kWh per day of Meridian's daily unmetered for 1,626 ICPs (95.3%). 80 ICPs had a difference of more than ± 1 kWh per day, and 20 ICPs had a difference of more than ± 2 kWh. I checked all ICPs with differences greater than ± 2 kWh and found:

- the load was corrected to the expected value prior to the on-site audit for three ICPs
- the loads for 11 ICPs are being checked with the customer, and data will be updated as required
- the other six ICPs are settled based on information provided by the customer (two), network (three) or previous retailer (one) and is different to the information recorded by the distributor on the registry; for ICP 0000742354TE377 the distributor recently removed the unmetered load. I recommend that these ICPs should be checked to confirm the correct unmetered load.

Description	Recommendation	Audited party comment	Remedial action
Changes to unmetered load	<p>Confirm the unmetered load for ICPs where Meridian's unmetered load is more than ± 2 kWh different to the distributor's unmetered load, including:</p> <ul style="list-style-type: none"> • 0000039251HRF8A • 0000040201HR19B • 0000040202HRD5B • 0000742354TE377 • 1001102586UN2FC • 0007169385RN84F. 	We are in the process of checking these unmetered loads	Investigating

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

The unmetered load for ICP 0042429011PC1E4 was under investigation in last year's audit and has now been decommissioned.

Audit outcome

Compliant

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

Code reference

Clause 17 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

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

The registry list as at 31/8/18, metering installation details report, and event detail report for 1/1/18 to 2/9/18 were checked for any variances between the initial electrical connection date, meter certification date, and the active date. I checked a diverse sample of 35 ICPs with date variances. The sample was selected by network, to check both metered and unmetered builders’ temporary supplies. In some audits I have found that some BTS metered supplies were not being recorded on the registry, and therefore the first active date and meter certification date was that of the permanent supply. No examples of this were found during this audit.

The process for the management of ICP reconnection and the timeliness of registry updates are discussed 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 unmetered kWh.

Disconnections and reconnections were previously processed manually which led to some data entry errors. Processing of disconnections and reconnections is now automated unless documentation is incomplete, or dates are inconsistent (e.g. the reconnection date is listed as before Meridian’s period of supply began). This has improved the speed and accuracy of status updates to “active”, but reconnection reads are not entered as part of the process which has led to some submission accuracy issues, which are discussed further in **section 12.7**.

Since September 2018, a weekly report has been run showing any ICPs with a difference of more than five days between the initial electrical connection date and active date. The discrepancies are worked through and resolved.

Active dates for reconnections were checked by reviewing a sample of ten updates to “active” for reconnections to confirm that the correct status and dates were applied. Nine of the ICPs checked had the correct dates and statuses recorded in Velocity and on the registry. ICP 0001394423UN83B was reconnected on 16/07/18. Velocity shows the correct reconnection date, but the registry incorrectly shows reconnection on 09/07/18.

Active dates for new connections were compared to the distributor’s initial electrical connection date, and MEP’s certification date where these dates were populated:

	New connections with date populated	Active date matches	Different
Distributor initial electrical connection date	1,566	1,472 (94%)	94
Meter certification date	1,929	1,836 (95%)	93

70 of the 94 ICPs where there was a difference between the active date and initial electrical connection date had a meter certification date that matched to Meridian's active date, which suggests that the distributor's date was incorrect. A sample of five of these ICPs were checked, and Meridian's active date was confirmed to be correct.

36 (39%) of these differences between active dates and meter certification dates are on the Orion network. Orion uses unmetered builders' temporary supplies. In these instances, the meter certification will never align with the ICPs first active date.

A diverse sample of 35 mismatches between active dates and initial electrical connection dates and/or meter certification dates were reviewed and found:

- for 17 ICPs, Meridian's active date was correct and consistent with connection information and paperwork
- for 16 ICPs, Meridian's active date had been entered incorrectly due to manual data entry errors; I confirmed that the active dates for these ICPs have now been corrected. Accuracy appears to have improved over time, and the reconnections with incorrect dates were all prior to July 2018.
- ICP 1099576884CNDA2 is currently being investigated to confirm the correct active date, following a Counties Power ICP deconsolidation; it has been moved to inactive status in the meantime.

During Counties Power's audit, Veritek found that ICP 1099576901CNCA3 had been made active from 18/1/18 but should have been made active from 2/2/18. A backdated correction has been processed for this ICP.

The event detail reports showed five new connections had their status updates to "active" reversed or replaced. The ICPs were reviewed during the audit and I confirmed that their statuses are now recorded correctly.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.8 With: 17 Schedule 11.1 From: 09-Jul-18 To: 16-Jul-18	ICP 0001394423UN83B has an incorrect active date on the registry. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate as the checks in place identify most, but not all potential errors. The audit risk rating is low, as one error was identified, and the difference was seven days.		
Actions taken to resolve the issue		Completion date	Remedial action status
The incorrect active date for ICP 0001394423UN83B was a result of human error. This has been corrected.		Complete	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
Population of active dates for new connections are now automated which should reduce instances of incorrect dates caused by human error. We have implemented a regular check of active dates against IED and meter cert dates to identify irregularities.		July 2018 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 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 typical sample of ten ICPs at each inactive status (or all if there were less than five) were checked. The findings in relation to the timeliness of updates to registry is recorded in **section 3.3**.

Audit commentary

Disconnections and reconnections were previously processed manually which led to some data entry errors. Processing of disconnections and reconnections is now automated unless documentation is incomplete, or dates are inconsistent (e.g. the reconnection date is listed as before Meridian's period of supply began). This has improved the speed and accuracy of status updates to active, but reconnection reads are not entered as part of the process which has led to some submission accuracy issues, discussed further in **section 12.7**.

Inactive - New Connection in progress

Analysis of the list file found no ICPs that had been at "new connection in progress" status for more than 24 months. 14 ICPs with "new connection in progress" status had an initial electrical connection date recorded. All were timing differences and had been updated to "active" effective from the initial electrical connection date by the time of the on-site audit.

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

Inactive Status (excluding new connection in progress)

Inactive statuses are only applied once Meridian's approved contractor has confirmed that the ICP has been disconnected.

Meridian records disconnections in Velocity as vacant or credit, and all disconnections are initially processed on the registry as vacant disconnections (1,4 status). Once an ICP has moved to 1,4 status Velocity will allow update to 1,6 if the ICP is to be decommissioned.

I checked a sample of 23 status updates to inactive to confirm whether the correct status and status date had been applied. The following status date errors were identified:

ICP	Applied date	Correct date	Status	Comments
0131735977LCD5F	12/04/18	13/04/18	1,4	Incorrect date applied. A safety disconnection was performed on 13/04/18 following storm damage.
0005970172RNDD7	01/12/12	17/05/12	1,6	Incorrect date applied. This backdated correction was processed from an incorrect date. The meter was removed, and the site was ready for decommissioning from 17/05/12.
0000012816EA64F	04/12/17	15/12/17	1,6	Incorrect date applied.
0006663520ALOB4	20/07/18	17/07/18	1,6	Incorrect date applied.
0005590809RN0E4	23/03/08	23/03/18	1,4	Incorrect date applied.

The registry list showed four ICPs currently recorded as "inactive - reconciled elsewhere". These were checked along with the ICPs with "reconciled elsewhere" status identified during the 2017 audit. All are being handled appropriately.

ICP	Reconciled under ICP – Main ICP	Comments
0005905583RN01D	0005950937RNBFD	Cleared. The status has been corrected to disconnected vacant, consistent with the main ICP.
0005906555RNE30	0005267315RNEAE	Cleared. The UML load has been added to main ICP at this address and this ICP is active with Meridian.
0005906873RN7E2	0005161533RND06	Cleared. 0005906873RN7E2 has been made active effective from 01/12/15 and unmetered load is being submitted. 0005161533RND06 has switched to another trader.
0005988896RN7F2	0005445124RN4FE	Cleared. The UML load has been added to main ICP at this address and this ICP is active with Meridian.
0006300324RNC8C	0005635225RN9D9	Cleared. The UML load has been added to main ICP at this address and this ICP is active with Meridian.
0007132883RN65A	0006843514RN3C2	Cleared. Consumption for this ICP is recorded under ICP 0006843514RN3C2, which is active with Meridian.

Meridian has processes in place to identify ICPs with inactive consumption. These processes are discussed in **section 9.5**, and corrections are discussed in **section 8.1**. I found that for 11 ICPs where consumption occurred while the ICP was inactive, the status was not returned to active for the affected period. The ICPs are:

ICP	Inactive date	Read indicating consumption	Status
0000471616WED25	22/06/2018	22/07/2018	Status is inactive for period with consumption
0000538781NR7A0	22/05/2018	24/07/2018	Switched out using last validated read in May, but switch event date was 01/10/18
0001398150UNF23	21/06/2018	29/07/2018	Switched out using last validated read in May, but switch event date was 06/06/18
0005934877RN484	18/05/2018	2/07/2018	Status is inactive for period with consumption
0006183506RN247	30/04/2018	26/07/2018	Switched out using last validated read in May, but switch event date was 18/08/18

ICP	Inactive date	Read indicating consumption	Status
0006470807RN1A5	3/04/2018	29/07/2018	Switched out using last validated read in March, but switch event date was 22/08/18
0006780130RNBB6	18/04/2018	20/07/2018	Status is inactive for period with consumption
0011007681PC3DB	4/05/2018	12/07/2018	Switched out using last validated read in May, but switch event date was 27/08/18
1001104752LCB67	25/05/2018	30/06/2018	Status is inactive for period with consumption
1001113708LCD7F	8/05/2018	23/07/2018	Status is inactive for period with consumption
1001263098LCB97	29/05/2018	27/07/2018	Status is inactive for period with consumption

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 3.9</p> <p>With: 19 Schedule 11.1</p> <p>From: 01-Dec-17</p> <p>To: 31-Oct-18</p>	<p>Five status updates to inactive had incorrect status dates applied.</p> <p>11 ICPs did not have their status returned to active where consumption during a period with inactive status was detected.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>
Audit risk rating	Rationale for audit risk rating
Low	<p>Controls are rated as moderate.</p> <p>Processes to manage routine status changes are robust, and automated processes have reduced data processing errors. The errors related to manually processed corrections, and corrections for ICPs with consumption during inactive periods.</p> <p>The audit risk rating is low, as a small number of ICPs were affected. There may be a small impact on settlement if the whole read period in which consumption occurred is inactive.</p>

Actions taken to resolve the issue	Completion date	Remedial action status
Relevant staff manually processing disconnections have been reminded of the importance of entering the correct inactive dates in the system and double checking where this is not clear on paperwork.	Dec 2018	Investigating
We will review our monitoring process to see whether it is possible to identify where ICPs should be returned to active status (or not)	30 April 2019	
We acknowledge the issue relating to the use of a read in the CS file that is not a read taken on the switch event date. We will investigate feasibility of changes to our existing system to resolve this	30 April 2019	
The issue will be resolved when the switching process for all NHH ICPs is conducted from the Flux system.	April 2020	
Preventative actions taken to ensure no further issues will occur	Completion date	

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

Code reference

Clause 15 Schedule 11.1

Code related audit information

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

Audit observation

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

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

Audit commentary

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

HH ICPs at "new" or "ready" status are monitored using spreadsheets, and weekly progress reports received from the MEP.

NHH ICPs at "new" or "ready" status are monitored using Velocity's workflows. Each service request moves through multiple work queues as each stage of the connection is completed.

I found two ICPs had "new" status for more than two years, and 18 had "ready" status for more than two years. I found that none of the ICPs were still required.

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

Audit outcome

Compliant

4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

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

Code reference

Clause 2 Schedule 11.3

Code related audit information

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

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

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

Audit observation

The switch gain process was examined to determine when 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, and that the correct switch type was selected.

Audit commentary

Meridian's processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. NT files are sent as soon as all pre-conditions are met (including a credit check) and the withdrawal process is used if the customer changes their mind.

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

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

Audit outcome

Compliant

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

Code reference

Clauses 3 and 4 Schedule 11.3

Code related audit information

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

- *provide acknowledgement of the switch request by (clause 3(a) of Schedule 11.3):*

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

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

Audit observation

An event detail report for 1/1/18 to 2/9/18 was reviewed to:

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

The switch breach report was examined for the audit period.

Audit commentary

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

The event detail report was reviewed for all 12,933 transfer ANs to assess compliance with the setting of event dates requirements:

- 12,094 (93.5%) of ANs had proposed event dates within five business days of the NT receipt date.
- 12,918 (99.9%) had proposed event dates within ten business days of NT receipt.
- 15 ANs had event dates more than ten business days after the NT receipt date. For all 15, the AN proposed event date matched the gaining trader's NT proposed event date.

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

Audit outcome

Compliant

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

Code reference

Clause 5 Schedule 11.3

Code related audit information

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

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

Audit observation

An event detail report for 1/1/18 to 2/9/18 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 ten 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).

CS files with average daily kWh that was negative, zero, or over 200 kWh were identified. A sample of 15 of these CS files were checked to determine whether the average daily consumption was correct.

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

Audit commentary

CS timeliness

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

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

In addition, the switching team runs the switch breach report daily to identify any switches which have not been sent within two business days, and a report to show failed switches acknowledgement codes relating to metering issues. These reports are reviewed, and exceptions are followed up daily.

The switch breach report recorded one late CS file for a transfer switch, but the breach was not genuine.

CS content

The 2017 audit found a change had been made to Meridian's billing system which resulted in final estimate reads being ignored by the switching process. Where an account had closed on estimate, the CS file was populated with the previous actual read. I verified this issue was resolved and confirmed that estimated reads are being populated in the CS file where the customer account has closed on estimate. Meridian withdrew the switches affected by this issue and processed them with the correct reads.

When creating CS files, Velocity uses the latest billed reading recorded on the customer account to populate the CS file.

- Where a customer account is open for the ICP on the switch date, Velocity creates an estimated closing read on Meridian's last day of responsibility if there is no scheduled read recorded in Velocity on that day.
- Where Meridian's last customer account for the ICP has closed prior to the switch date, the last billed read for the latest customer is applied as both the switch read and the last actual read date.

I reviewed the CS content for ten transfer switches and found the following CS files contained incorrect CS read information. A reading recorded on a date prior to Meridian's last day of responsibility had been applied as the event reading, and recorded as an actual read on the event date:

ICP	CS event date	Date of reading provided in CS	CS read value	CS read type
0006466630RN0BD	06/01/18	Incorrect, read is last actual on 30/12/17	Incorrect, read for wrong day applied (+202 kWh)	Incorrect, recorded as an actual read on event date
0005290546RND9C	09/01/18	Incorrect, read is last actual on 04/01/18	Incorrect, read for wrong day applied (+41 kWh)	Incorrect, recorded as an actual read on event date
0000444050WP682	13/01/18	Incorrect, read is last actual on 08/01/18	Appears reasonable, no actuals available to confirm	Incorrect, recorded as an actual read on event date
0000043896CPD65	15/01/18	Incorrect, read is last actual on 10/01/18	Incorrect, read for wrong day applied (+98 kWh)	Incorrect, recorded as an actual read on event date

Four transfer CS files contained estimated reads when actual AMI reads were available. Because the AMI reads were not validated, this is not recorded as non-compliance. Often, Meridian has AMI readings available on their last day of responsibility for an ICP, but these are only used for switching if they are already loaded into Velocity as a scheduled billed read. Meridian is testing system changes which will allow them to validate and apply AMI meter readings for switching. This is expected to improve accuracy and reduce the number of RRs.

Estimated daily kWh is calculated based on the daily average consumption for the last actual read to read period. For most CS files checked, the consumption did appear consistent with the last read to read period, but in some cases the estimated daily consumption was inconsistent with the expected value. This most commonly occurred where two reads were billed on the same day resulting in a divisor of zero, but there were some other instances where differences occurred. Meridian have provided some examples to Gentrack for investigation.

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

Count of transfer CS files	Estimated daily kWh
Negative	60
Zero	411
More than 200 kWh	366

A sample of 15 of these ICPs were checked.

- All five ICPs with zero estimated daily consumption had the correct daily average recorded

- All five ICPs with estimated daily consumption over 200 kWh had the correct daily average recorded
- Four of the ICPs with negative consumption had the correct daily average recorded. Where there are X and I flow meters attached to the meter installation, Meridian treats the I flow as negative and X flow as positive. Where the I flow exceeds the X flow for the read to read period, the overall average daily consumption for the installation is recorded as negative. The code and registry functional specification do not explicitly state how I flow consumption should be treated when calculating estimated daily consumption, and Meridian's approach appears reasonable. The estimated daily consumption for ICP 0001031040TG829 has been referred to Gentrack for investigation as it does not appear consistent with the consumption for the last read to read period.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.3 With: 5 Schedule 11.3 From: 06-Jan-18 To: 30-Aug-18	Some CS read and average daily kWh information recorded in CS files is incorrect. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as weak as errors are likely to occur where a customer account has been closed prior to the switch out. The audit risk rating is low as the kWh differences found are generally small.		
Actions taken to resolve the issue		Completion date	Remedial action status
We have identified the CS read issue occurs only on TR switches where a final read is pending (at a customers request) when the NT file is received. We will investigate an exception process to manage this scenario.		30 June 2019	Investigating
We are confirming the logic used to calculate average daily consumption for the examples identified to confirm whether this is a data or logic issue.		28 Feb 2019	

Preventative actions taken to ensure no further issues will occur	Completion date	

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

Code reference

Clause 6(1) and 6A Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

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

The event detail report for 1/1/18 to 2/9/18 was analysed to identify all read change requests and acknowledgements during the audit period. A sample of ten RR files issued by Meridian, and five AC files issued by Meridian were checked.

I also checked a sample of five estimated CS files provided by other traders where no RR was issued to determine whether the correct readings were recorded in Velocity.

Audit commentary

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

Meridian issued 164 RR files for transfer switches. 135 were accepted and 29 were rejected. A sample of five rejected files and five accepted files were checked. In all cases there was a genuine reason for Meridian's RR, the file content was accurate and supported by two actual reads obtained by Meridian (or was as requested by the other trader), and the reads recorded in Meridian's system reflected the outcome of the RR process.

Meridian issued 505 AC files for transfer switches. 461 were accepted and 44 were rejected. A sample of five AC rejections were checked. Four were validly rejected, but the RR for ICP 0445072032LC459 on

31/03/18 was rejected in error due to misinterpretation of a note attached to the customer account. It was not reissued.

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

The switch breach report confirmed all transfer RR and AC files were sent within the required timeframe.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.4 With: Clause 6(1) and 6A Schedule 11.3 From: 31-Mar-18 To: 31-Mar-18	One RR issued to Meridian was rejected in error. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong, because in most cases RR files are processed correctly. The impact is assessed to be low, the difference between the CS and requested RR readings was 50 kWh.		
Actions taken to resolve the issue		Completion date	Remedial action status
The incorrectly rejected RR was due to human error and not a systemic issue.		N/A	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We will continue with existing controls in this area.		Ongoing	

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

Code reference

Clause 6(2) and (3) Schedule 11.3

Code related audit information

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

- *the gaining trader will trade electricity from a meter with a half hour submission type in the registry (clause 6(2)(b));*

- the gaining trader within five business days after receiving final information from the registry manager, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading.

Audit observation

The process for the management of read requests was examined. The event detail report for 1/1/18 to 2/9/18 was analysed to identify read change requests issued and received under Clause 6(2) and (3) Schedule 11.3 and determine compliance.

Audit commentary

Review of the event detail report found 1,154 RR files were issued to Meridian within five business days of switch completion, by traders using a half hour profile. Of those, 1,076 files were accepted, and 78 files were rejected.

For the 78 rejected files:

- 16 were validly rejected because the CS reading was an actual AMI reading
- 13 were validly rejected because a withdrawal was to be processed instead
- five were validly rejected because Meridian had actual readings confirming that the RR reads were incorrect, this was communicated to the other trader
- 39 were initially rejected but were accepted when the RR was reissued
- five were invalidly rejected, usually because the staff member processing the RR had not realised it was issued within five business days; RRs were not reissued by the other trader.

ICP	Event date	Other trader
0000328272MP9EA	28/05/2018	ELKI
0005188946RN8C5	28/03/2018	ELKI
0005214084RN656	11/08/2018	FLCK
0005770157RN7DB	8/03/2018	ELKI
0445072032LC459	31/03/2018	ELKI

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

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 4.5</p> <p>With: Clause 6(2) and (3) Schedule 11.3</p> <p>From: 08-Mar-18</p> <p>To: 11-Aug-18</p>	<p>Five RRs issued to Meridian under clause 6(2) and (3) of Schedule 11.3 were invalidly rejected.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>

Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are rated as moderate because most RRs issued under clause 6(2) and (3) of Schedule 11.3 were accepted or validly rejected. Where RRs were reissued, they were usually accepted.</p> <p>The impact is rated as low because a small number of RRs were rejected and not reissued.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Relevant staff have been reminded of Code obligations in relation to the acceptance of RR's under clauses 6(2) and (3)		Complete	

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

Code reference

Clause 7 Schedule 11.3

Code related audit information

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

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 9 Schedule 11.3

Code related audit information

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

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

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

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

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

Audit observation

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

Audit commentary

Meridian’s processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. NT files are sent as soon as all pre-conditions are met (including a credit check) and the withdrawal process is used if the customer changes their mind.

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

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

In some cases, Meridian requests these contract customer switches as switch moves instead of transfer switches. While it is possible to request a standard switch with a proposed switch event date, the losing trader may elect to use a different date. For switch moves, the losing trader should comply with the requested date increasing the likelihood that the ICPs will switch on the correct date. I saw evidence that transfer switches for two district councils were requested as switch moves, when the customer was not moving into the affected addresses. In one case the losing retailer had specifically asked Meridian to request the ICPs as switch moves to ensure that the correct event date was applied.

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

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.7</p> <p>With: Clause 9 Schedule 11.3</p> <p>From: 01-Feb-18 and 01-Oct-18</p>	<p>Switch move NTs were sent for two contract customer groups, where the customers were not moving in effective from the switch date.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are rated as strong, because the correct switch type is used in most cases.</p> <p>The audit risk rating is low, because there is no impact on settlement or other participants, and it helps to ensure ICPs are switched on the correct date. There is some impact on market switching statistics.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>The issue identified is widely used by Traders as a workaround to ensure, where required by customer contracts (or in some cases losing trader systems) NHH ICPs are switched as at a particular contracted date.</p> <p>It is Meridian's general practice to only use this work around where necessary to ensure customers are not unduly impacted by limitations with the TR switching process or Trader systems.</p> <p>We have raised this issue in our submission on the Authority's switch process review.</p>		N/A	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

Clause 10(1) Schedule 11.3

Code related audit information

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

- 10(1)(a) If the losing trader accepts the event date proposed by the gaining trader, the losing trader must complete the switch by providing to the registry manager:
 - o confirmation of the switch event date; and

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

Audit observation

An event detail report for 1/1/18 to 2/9/18 was reviewed to:

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

The switch breach report was examined for the audit period.

Audit commentary

AN code selection is managed by Meridian using business rules that are set within Velocity. Eight of the ten AN codes checked were correctly applied. The AA code is expected only used when none of the other codes were relevant, but I identified two ICPs with advanced meters where AA was applied. Meridian is investigating to determine why the AA code was applied for the affected ICPs:

ICP	Event date	Applied Code	Correct Code
0000047644DE6B5	11/02/2018	“AA” (accept and acknowledge)	“AD” (advanced metering)
0006023375AL907	17/02/2018	“AA” (accept and acknowledge)	“AD” (advanced metering)

The event detail report was reviewed for all 17,860 switch move ANs to assess compliance with the setting of event dates requirements:

- 17,850 (99.9%) had proposed event dates within ten business days of NT receipt
- ten ANs had event dates more than ten business days after the NT receipt date; for all ten, the AN proposed event date matched the gaining trader’s NT proposed event date
- no AN proposed event dates were before the gaining trader’s proposed event date.

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.8 With: Clause 10(1) Schedule 11.3 From: 11-Feb-18 and 18-Feb-18	Incorrect AN response codes were applied for two switch moves. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls over AN responses are strong. They are automated and sufficient to ensure that the correct response code will be applied most of the time. The impact is assessed as low. Information available on the registry confirmed that the two ICPs with incorrect response codes had advanced metering.		
Actions taken to resolve the issue		Completion date	Remedial action status
We will undertake further analysis to determine whether the application of incorrect AN response codes is a systemic issue and refer to our vendor if required.		30 April 2019	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

Clause 10(2) Schedule 11.3

Code related audit information

If the losing trader determines a different date, the losing trader must also complete the switch by providing to the registry manager as described in 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

An event detail report for 1/1/18 to 2/9/18 was reviewed to identify AN files issued by Meridian during the audit period, and assess compliance with the requirement to meet the setting of event dates requirement.

Audit commentary

Analysis found all 17,860 switch move ANs had a valid switch response code and compliant proposed event dates. No ANs had proposed event dates earlier than the gaining trader's proposed date.

Audit outcome

Compliant

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

Code reference

Clause 11 Schedule 11.3

Code related audit information

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

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

Audit observation

An event detail report for 1/1/18 to 2/9/18 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 ten 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).

CS files with average daily kWh that was negative, zero, or over 200 kWh were identified. A sample of 15 of these CS files were checked to determine whether the average daily consumption was correct.

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

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

Audit commentary

CS timeliness

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

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

In addition, the switching team runs the switch breach report daily to identify any switches which have not been sent within two business days, and a report to show failed switches acknowledgement codes relating to metering issues. These reports are reviewed, and exceptions are followed up daily.

The switch breach report recorded 11 late CS files for switch moves. Ten were found not to be genuine. One late CS file occurred because the customer signed up with another retailer just after being gained by Meridian, and there was a delay in confirming that the customer did want to switch out. The CS was one day late.

CS content

As recorded in **section 4.3**, the 2017 non-compliance relating to estimate readings being ignored for CS files has been cleared.

When creating CS files, Velocity uses the latest billed reading recorded on the customer account to populate the CS file.

- Where a customer account is open for the ICP on the switch date, Velocity creates an estimated closing read on Meridian's last day of responsibility if there is no scheduled read recorded in Velocity on that day.
- Where Meridian's last customer account for the ICP has closed prior to the switch date, the last billed read for the latest customer is applied as both the switch read and the last actual read date.

Often, Meridian has AMI readings available on their last day of responsibility for an ICP, but these are only used for switching if they are already loaded into Velocity as a scheduled billed read. Meridian is testing system changes which will allow them to validate and apply AMI meter readings for switching. This is expected to improve accuracy and reduce the number of RRs.

I reviewed the CS content for 11 switch moves and found the following CS files contained incorrect CS read information. A reading recorded on a date prior to Meridian's last day of responsibility had been applied as the event reading, and recorded as an actual read on the event date:

ICP	CS event date	Date of reading provided in CS	CS read value	CS read type
0006000778HB33B	02/01/18	Incorrect, read is last actual recorded on 19/12/17	Correct	Correct
0208818340LC23D	03/01/18	Incorrect, read is last actual on 22/12/17	Incorrect, read for wrong day applied (+7 kWh)	Incorrect, recorded as an actual read on event date
0033864213PC315	29/08/18	Incorrect, read is last actual recorded on 02/02/18	Incorrect, read for wrong day applied (+27 kWh)	Incorrect, recorded as an actual read on event date
0000001871CP2C0	06/08/18	Incorrect, read is last actual recorded on 18/07/18	Incorrect, read for wrong day applied (+1 kWh)	Incorrect, recorded as an actual read on event date
1001125845LCB62	5/08/2018	Incorrect, read is last actual on 03/08/18	Appears reasonable no AMI read is available	Incorrect, recorded as an actual read on event date

ICP	CS event date	Date of reading provided in CS	CS read value	CS read type
0000556545NR1DA	02/08/18	Incorrect, read is last actual on 11/07/18	Incorrect, read for wrong day applied (+5 kWh)	Incorrect, recorded as an actual read on event date

Four switch move CS files contained estimated reads when actual AMI reads were available. Because the AMI reads were not validated, this is not recorded as non-compliance. Meridian is testing system changes which will allow them to validate and apply AMI meter readings for switching. This is expected to improve accuracy and reduce the number of RRs.

Estimated daily kWh is calculated based on the daily average consumption for the last actual read to read period. For most CS files checked, the consumption did appear consistent with the last read to read period, but in some cases the estimated daily consumption was inconsistent with the expected value. This most commonly occurred where two reads were billed on the same day resulting in a divisor of zero, but there were some other instances where differences occurred. Meridian have provided some examples to Gentrack for investigation.

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

Count of switch move CS files	Estimated daily kWh
Negative	61
Zero	2777
More than 200 kWh	152

A sample of 15 of these ICPs were checked.

- Four ICPs with zero estimated daily consumption had the correct daily average recorded. The estimated daily consumption for 1099560325CN7D7 was incorrectly recorded as zero, because a read period of zero days was billed.
- Four ICPs with estimated daily consumption over 200 kWh had the correct daily average recorded. The estimated daily consumption for ICP 0001415551UNF69 does not appear consistent with the last read to read period consumption and is being investigated by Meridian.
- The five ICPs with negative consumption appear to have incorrect values recorded.

ICP	Comment
0111009154LC676	Human error when entering final switch read resulted in incorrect estimated daily consumption.
0000023380NTD0A	Two reads were billed on the same day and resulted in negative average daily consumption.
0000005986TRED2	The estimated daily consumption appears to be the difference between an estimated and actual read.
0000765214NV9AC	Meridian is investigating to confirm why an unexpected negative value was recorded.

ICP	Comment
0000302200WPF3	Meridian is investigating to confirm why an unexpected negative value was recorded.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.10</p> <p>With: 11 Schedule 11.3</p> <p>From: 02-Jan-18</p> <p>To: 29-Aug-18</p>	<p>Some CS read and average daily kWh information recorded in CS files is incorrect.</p> <p>One late CS file.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are rated as weak as errors are likely to occur where a customer account has been closed prior to the switch out.</p> <p>The audit risk rating is low as the kWh differences found are generally small.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
We acknowledge the issue relating to the use of a read in the CS file that is not a read taken on the switch event date. We will investigate feasibility of changes to our existing system to resolve this.		30 April 2019	Investigating
The issue will be resolved when the switching process for all NHH ICPs is conducted from the Flux system.		April 2020	
We are confirming the logic used to calculate average daily consumption for the examples identified to confirm whether this is a data or logic issue		28 Feb 2019	
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

Clause 12 Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

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

The event detail report for 1/1/18 to 2/9/18 was analysed to identify all read change requests and acknowledgements during the audit period. A sample of ten RR files issued by Meridian, and five AC files issued by Meridian were checked.

I also checked a sample of five estimated CS files provided by other traders where no RR was issued to determine whether the correct readings were recorded in Velocity.

Audit commentary

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

Meridian issued 523 RR files for switch moves. 282 were accepted and 141 were rejected. A sample of five rejected files and five accepted files were checked. In all cases there was a genuine reason for Meridian's RR, the file content was accurate and supported by two actual reads obtained by Meridian (or was as requested by the other trader), and the reads recorded in Meridian's system reflected the outcome of the RR process.

Meridian issued 1,649 AC files for switch moves. 1,378 were accepted and 271 were rejected. A sample of five AC rejections were checked and found to be validly rejected. Meridian accepted RRs which were reissued with corrected readings.

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

The switch breach report confirmed all transfer RR and AC files were sent within the required timeframe.

Audit outcome

Compliant

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

Code reference

Clause 13 Schedule 11.3

Code related audit information

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

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

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

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

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

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

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

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

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

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

Audit observation

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

Audit commentary

The HH switching process is manual. NTs are issued once the account manager provides a contract preparation form which contains all the necessary details to prepare the switch and set up the customer.

All HH switches are tracked using a spreadsheet, which is checked daily.

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 manager, the losing trader must:

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

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

Audit observation

An event detail report for 1/1/18 to 2/9/18 was reviewed to:

- identify AN files issued by Meridian during the audit period; and
- a sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied; and
- determine whether ANs had been sent within three business days of receiving the NT.

The switch breach report was examined for the audit period.

Audit commentary

Once the NT file is received the process is managed manually due to the liaison required across the organisation. The check of the AN codes found all were correct.

The switch breach report did not record any late AN files. The event detail report was reviewed for all 60 HH ANs to assess compliance. 58 (97%) were sent within three business days, and two were sent late. 0000045840NTE73's AN was delayed by a withdrawal attempt, and 0006910165RN323's AN was delayed while Meridian confirmed the switch was to proceed for a contract customer. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.13 With: Clause 15 Schedule 11.3 From: 14-Jun-18 To: 18-Jun-18	One late AN file for a HH switch. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong, because most AN files were issued on time and all AN files contained the correct content. The impact was low, because the AN was issued two business days late.		
Actions taken to resolve the issue		Completion date	Remedial action status
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We consider adequate controls are in place		Ongoing	

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

Code reference

Clause 16 Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

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

Audit commentary

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

The content of all 159 HH CS files was reviewed and found to be compliant.

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

Audit observation

An event detail report for 1/1/18 to 2/9/18 was reviewed to:

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

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

Audit commentary

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

The content of 15 rejected NW files was compared to Velocity details. For 12 NW files the withdrawal code was correct based on the information available at the time of the request. For three withdrawals initiated by the retention team incorrect codes were applied, this team is expected to only use the CX (customer cancellation) code.

ICP	Event date	Applied code	Correct code
0000049173TR392	12/06/2018	UA (unauthorised switch)	CX (customer cancellation)
0000481720CE79F	9/07/2018	UA (unauthorised switch)	CX (Customer cancellation)
0223157260LC08F	25/01/2018	WR (losing retailer not current retailer)	CX (Customer cancellation)

151 (3.1%) of the 4,875 NWs were issued more than 60 business days after the event date. 84 of those used the code for wrong premises, and I note that this issue often does not become apparent for an extended period after a switch completes. A sample of the ten latest files were checked, and I found they were delayed while investigation was carried out to determine whether a withdrawal was required.

519 of the 5,419 AWs issued by Meridian were rejections. I reviewed a sample of ten rejections by Meridian, and confirmed they were rejected based the information available at the time the response was issued. In some cases Meridian asked the other trader to reissue the withdrawal with the correct code, and later accepted.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.15 With: Clauses 17 and 18 Schedule 11.3 From: 29-Jan-18 To: 10-Jul-18	Three NWs had incorrect withdrawal codes applied. 151 NWs were issued late. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are rated as moderate, as they are sufficient to ensure that most NWs contain correct codes and are sent on time. The incorrect NW codes were caused by data entry errors, and the late files reviewed related to complex cases.</p> <p>The impact is low, the affected NWs were rejected and resent with the correct codes, and a small percentage of withdrawals were issued late.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Relevant staff members have been reminded of the correct withdrawal code to use when issuing switch withdrawals as part of retention process.</p> <p>As reported switch withdrawals requested outside the 60 day timeframe generally relate to issues such as the incorrect ICP being switched and are usually customer impacting. Meridian will continue to request switch withdrawals where necessary to resolve these types of customer impacting issues.</p>		Complete	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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.

Win-back 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 process until the switch has completed.

The event detail report was examined and found 15 withdrawal requests were sent prior to the event date:

- 14 were issued to traders who were not save protected.
- A withdrawal for 0000844361NVEAD was issued to a protected trader and was rejected. Meridian did not attempt to win-back ICP 0000844361NVEAD. A notification requesting a rate change was received from the Powerswitch website for this ICP before the switch out was completed, and Meridian had assumed this meant the customer wished to stay. Following this, the customer confirmed by email that they wished to continue with the switch and the other retailer rejected Meridian's NW. The switch was completed as required.

Audit outcome

Compliant

5. MAINTENANCE OF UNMETERED LOAD

5.1. Maintaining shared unmetered load (Clause 11.14)

Code reference

Clause 11.14

Code related audit information

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

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

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

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

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

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

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

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

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

Audit observation

I reviewed the processes to identify shared unmetered load.

Examination of the Meridian list file as at 11/08/2018 found Meridian has 179 ICPs with shared unmetered load.

Audit commentary

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

Unmetered load is also checked regularly as described in **section 3.7**.

The analysis found that all ICPs had the correct load 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 as at 11/08/2018 found 3,786 active ICPs have unmetered load recorded excluding distributed unmetered load ICPs, which are discussed in **section 5.4**.

39 ICPs had a load of 3,000-6,000 kWh and were examined to determine whether the load was predictable and of a type approved by the authority.

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

Audit commentary

23 of the 39 ICPs with daily kWh between 3,000 and 6,000 kWh had an approved load type. Two more ICPs had their unmetered load corrected to a value below the threshold prior to the on-site audit.

The other 14 ICPs were checked and found to be under investigation to determine the type of load, and whether they should be metered.

ICP	Load connected	Annual kWh	Supplied since	Findings
0042429066PC973	Unknown fire siren	3,285	01/12/14	Under investigation
0000023709EACBF	Unknown possibly rugby club lighting	3,285	17/11/06	Under investigation - inherited unmetered load details from previous trader, no unmetered load is recorded by the distributor
0000024994EAE68	Unknown possibly rugby club lighting	3,285	08/09/05	Under investigation - inherited unmetered load details from previous trader, no unmetered load is recorded by the distributor
0000025557EA8EB	Unknown possibly rugby club lighting	3,285	19/09/07	Under investigation - inherited unmetered load details from previous trader, no unmetered load is recorded by the distributor
0007175565RN792	0600;18.0;Message Sign	3,942	14/07/16	Under investigation

ICP	Load connected	Annual kWh	Supplied since	Findings
1001263116LC442	0.50kW:24:Sign 500W	4,380	28/04/14	Working with account manager to arrange for the ICP to be metered.
1001263128LC021	0.50kW:24:Sign 500W	4,380	28/04/14	Working with account manager to arrange for the ICP to be metered.
0055262000WR704	Railway level crossing lights	3,139	10/11/06	Under investigation
0055263000WR6A4	Railway level crossing lights	3,139	10/11/06	Under investigation
0055260000WR444	Railway level crossing lights	3,212	10/11/06	Under investigation
0065041000WR36C	Railway level crossing lights	3,212	10/11/06	Under investigation
0065048000WRFCC	Railway level crossing lights	3,212	10/11/06	Under investigation
0000033540CHEE9	Railway level crossing arms	4,380	16/12/15	Under investigation
0000033541CH2AC	Railway level crossing arms	4,380	16/12/15	Under investigation

The 14 unmetered ICPs that have estimated daily kWh of 3,000-6,000 kWh but have not been confirmed to have an approved load type are recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 5.2</p> <p>With: Clause 10.14 (2)(b)</p> <p>From: 01-Dec-17</p> <p>To: 31-Oct-18</p>	<p>14 unmetered ICPs have estimated daily kWh of 3,000-6,000 kWh but have not been confirmed to have an approved load type.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>

Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are rated as moderate. Although a small number of ICPs are affected, all have been supplied for more than two years.</p> <p>The impact is assessed to be low, because there are a small number of ICPs affected and consumption is below 6,000 kWh per annum per ICP.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Actions are in progress as recorded in the table above.		Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

Clause 10.14 (5)

Code related audit information

If the unmetered load limit is exceeded the retailer must:

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

Audit observation

The process to manage UML loads was examined.

Examination of the Meridian list file as at 11/08/2018 found six ICPs with a load that exceeded the 6,000 kWh threshold, including two which were identified in the previous audit. All were examined.

Audit commentary

The ICPs with consumption over 6,000 kWh that were identified during the current audit were examined.

ICP	Load connected	Annual kWh	Supplied since	Findings
1001263111LC988	1.00kW:24:Sign 500W	8,760	28/04/14	Under investigation
1001263113LC90D	1.00kW:24:Sign 500W	8,760	18/04/14	Under investigation

ICP	Load connected	Annual kWh	Supplied since	Findings
0000553532NRE6D	DUML; La Pointe Streetlights; BRB0331	27,535.6	15/03/05 unmetered details added 01/05/06	This has been confirmed as a DUML load and an audit was undertaken post the list file being provided- detailed in section 5.4
0007175618RNE97	0726;24.0;Pedestrian Underpass	6,358.3	06/07/16	In discussion with CCC. Expected to be added to an existing DUML database or metering installed.

The ICPs with unmetered load discrepancies not resolved by the time of the 2017 were rechecked:

ICP	Annual consumption	2017 findings	2018 findings
0000100115UN46C	6,023	Under investigation	Still existing. Meridian are still investigating this load.
1001145181UNCC2	8,585	Under investigation	Still existing. Meridian are still investigating this load.
0007181925RNA27	13,140	Under investigation	Cleared. A backdated correction to 0.7 kWh per day was processed February 2018, effective from 02/08/17.
0006947042RNDAC	8,333	Under investigation	Cleared. A backdated correction to 2.95 kWh per day was processed in June 2018 effective from 14/05/18.
1000566367PCBBD	10,585	Under investigation	Cleared. Metering was installed on 04/12/17.
0006300022RNE00	7,577	Under investigation	Cleared. Decommissioned effective from 31/01/18.
0000916610TEA3F	6,132	Under investigation	Cleared. A backdated correction to 6.48 kWh per day was processed May 2018, effective from 01/04/17.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 5.3 With: 10.14 (5) From: 01-Dec-17 To: 31-Oct-18	Five standard unmetered ICP with annual consumption over 6,000 kWh. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate because most ICPs falling into this category are identified and resolved. This is evident with the year on year reduction of these ICPs. However, some ICPs in this category have been supplied for several years. The audit risk rating is low as only six ICPs exceed 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 work to resolve these unmetered loads		Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

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 17 distributed unmetered load databases. All those due before the audit regime changed were audited by Veritek during the audit period. All but three of these have been audited under the new audit regime.

Audit commentary

The table below shows the findings from the last audits. The two databases that have not been audited (highlighted in blue) were discussed and found:

- NZTA Northland - Meridian are reconciling this DUMML load using the Northpower database information, they are negotiating with Northpower to get this database audited
- NZTA Kaitoke - Meridian are working with Wellington Electricity and NZTA to determine where the lights associated with this ICP are; it is possible that these lights are duplicated with load recorded in another NZTA database.

This is recorded as non-compliance below.

			Compliance Achieved (Yes/No)								
Database	Next audit due date	DUML Audit completed 16A.26 and 17.295F	Deriving submission information 11(1) of schedule 15.3	ICP identifier 11(2)(a) of schedule 15.3	Location of items of load 11(2)(b) of schedule 15.3	Description of load 11(2)(c)&(d) of schedule 15.3	All load recorded in database 11(2A) of schedule 15.3	Tracking of load changes 11(3) of schedule 15.3	Audit trail 11(4) of schedule 15.3	Database accuracy 15.2 and 15.37B(b)	Volume information accuracy 15.2 and 15.37B(c)
NZTA - Northland	TBC	No	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Gisborne DC	1/12/18- note was with alt trader for prev audit	Yes	No	Yes	Yes	No	No	No	Yes	No	No
Scanpower-Community Lighting	1/12/2019	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
NZTA-Scanpower	1/12/2019	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No
NZTA-Waipukarau	1/03/2019	Yes	No	No	Yes	No	No	Yes	Yes	No	No
Palmerston North CC	1/12/2018	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No
NZTA- Kaitoke	TBC	No	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
Wellington City Council traffic lights	25/02/2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hurunui DC	28/11/2019	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes
Kaikoura DC	1/12/2019	Yes	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes

Database	Next audit due date	DUML Audit completed 16A.26 and 17.295F	Deriving submission information 11(1) of schedule 15.3	ICP identifier 11(2)(a) of schedule 15.3	Location of items of load 11(2)(b) of schedule 15.3	Description of load 11(2)(c)&(d) of schedule 15.3	All load recorded in database 11(2A) of schedule 15.3	Tracking of load changes 11(3) of schedule 15.3	Audit trail 11(4) of schedule 15.3	Database accuracy 15.2 and 15.37B(b)	Volume information accuracy 15.2 and 15.37B(c)
La Point Subdivision Northland	To be set by the EA - audit indicated next audit in 18 mths	No- not by the due date	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
NZTA Christchurch	1/06/2020	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	No
Selwyn DC	31/052019	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	No
Waterloo Park	1/06/2020	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Jacks Point	31/05/2019	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	No
Gore DC	1/12/2018	Yes	No	Yes	No	Yes	No	No	Yes	No	No
Southland DC	1/3/2019	Yes	No	Yes	No	No	No	No	Yes	No	No
Buller DC- note will be split per database	1/12/2018	No	No	No	No	No	No	Yes	Yes	No	No

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 5.4</p> <p>With: Clause 11 Schedule 15.3, Clause 15.37B & 16A.26</p> <p>From: 01-Sep-17 To: 30-Sep-18</p>	<p>12 of 17 distributed unmetered databases not accurate.</p> <p>Two distributed unmetered databases not yet audited.</p> <p>One database audited late.</p> <p>Potential impact: High</p> <p>Actual impact: High</p> <p>Audit history: Multiple</p> <p>Controls: Moderate</p> <p>Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
High	<p>The effectiveness of the controls is recorded as moderate as Meridian are working to resolve the issues found.</p> <p>The impact on settlement is major because the incorrect submission figures are major for some databases.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Actions being taken to address issues with DUMML databases are detailed in individual DUMML audit reports</p> <p>We are working to establish useable DUMML databases for NZTA - Kaitoke and Northland.</p>		<p>Ongoing</p> <p>Ongoing</p>	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

6. GATHERING RAW METER DATA

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

Code reference

Clause 10.13, Clause 10.24 and Clause 15.13

Code related audit information

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

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

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

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

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

Audit observation

The registry list and meter installation details reports as at 31/8/18 were examined to determine whether any ICPs with generation were supplied during the audit period. Processes for distributed generation were reviewed.

Audit commentary

Metering installations installed

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

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

Subtraction is also used for settlement for ICP 0000100018WP6F5. It is a residual load ICP for Kiwirail and is settled by difference, but it has not been set up as an embedded network. No exemption is in place allowing settlement by difference and this is recorded as non-compliance below.

Distributed generation

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

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

Meridian's list file was examined and 4,027 active ICPs were found with generation listed by the Distributor. Of those:

- 3,953 (98.2%) had an I flow meter register and HHR, PV1, or EG1 profiles recorded

- four ICPs had an I flow meter register installed, but no generation profile; one ICP invalidly had generation metering recorded and has been corrected by the MEP, two were timing differences and PV1 profile has now been added, and one is about to start generating and will have PV1 profile added
- 70 ICPs did not have I flow meter registers recorded on the registry;
 - three of these had PV1 profile recorded but two of the ICPs now have EG meters recorded on the registry (ICP 0003330452ML44E's EG meter shows X flow), and ICP 0007130182RN056 is being followed up with the MEP
 - the remaining 67 ICPs did not have PV1 or EG1 profiles recorded and a sample of 49 of these ICPs were checked; three now have EG meters installed and their profiles have been updated, 38 were not generating or were using all electricity generated internally, and eight may be generating but have not had EG meters installed yet (the ICPs which may be generating are followed up through Meridian's distributed generation processes).

Description	Recommendation	Audited party comment	Remedial action
Distributed generation metering	Query the flow direction for 0003330452ML44E meter 00095947 register 2, which has flow direction X and register content EG with the MEP.	This was queried with the MEP and has now been updated on the Registry.	Cleared. The registry now shows flow direction I for the EG meter.

Following the 2017 audit, the EA raised concerns that 11 ICPs with generation were not assigned a generation profile when generation metering was installed. I checked all of the affected ICPs and found they had the correct profiles assigned:

- for nine ICPs the profile had been corrected to PV1 for the generation meter effective from the switch in date or the date that generation metering was installed, whichever was later
- for ICP 0000772609WPE85 the generation profile was removed from 16/2/17 to 9/1/18, and the metering records on the registry show generation registers were not present during this period, the PV1 profile was reinstated when the meter was changed to one which included I flow registers on 17/2/18
- for one ICP the switch was withdrawn.

The profiles of EG1 and PV1 were checked, to determine whether they had been applied correctly based on the fuel type. Nine ICPs had "other" indicated and were recorded with the PV1 profile. Eight were confirmed to have solar generation. The generation fuel type was unable to be confirmed for the other ICP, but the profile was consistent with profile assigned by the previous retailer.

Bridged meters

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

Four examples of bridged meters were identified, and corrections to record consumption during the bridged period were processed. The corrections were reviewed in **section 8.1**. The existence of bridged meters is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.1 With: Clause 10.13, 10.24 and 15.13 From: 01-Dec-17 To: 31-Oct-18	While meters were bridged, energy was not metered and quantified according to the code for four ICPs. ICP 0000100018WP6F5 is settled by difference without an exemption being in place. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as strong as they are sufficient to reduce the risk most of the time. One ICP is settled by difference without an exemption being in place. 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. In all examples reviewed, corrections had been processed.		
Actions taken to resolve the issue		Completion date	Remedial action status
As reported meters are bridged when necessary and this will continue to be the case.		Ongoing	Identified
We will consider an exemption for ICP 0000100018WP6F5		28 Feb 2019	
Preventative actions taken to ensure no further issues will occur		Completion date	
We will continue with existing controls to ensure unmetered consumption that occurs when a meter is bridged is accounted for in the settlement process.		Ongoing	

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

Code reference

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

Code related audit information

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

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

The participant responsible for the metering installation must:

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

Audit observation

The NSP table was reviewed to confirm the GIPs which 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	13/10/2020
MERI	MANAPOURI	MAN2201MERIGG	MERG	3/02/2019
MERI	OHAU A	OHA2201MERIGG	MERG	1/06/2019
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	20/02/2020
MERI	WESTWIND	WWD1102MERIGG	MERG	20/11/2018
MERI	WESTWIND	WWD1103MERIGG	MERG	23/11/2018

All metering installations have current certification. Five of the grid connected metering installations have been recertified during the audit period and the date has been notified via the RM portal:

NSP	POC code	Certification expiry	Previous audit expiry
BEN2202MERIGG	BEN2202	13/10/2020	24/05/2019

NSP	POC code	Certification expiry	Previous audit expiry
OHA2201MERIGG	OHA2201	1/06/2019	8/07/2018
WWD1102MERIGG	WWD1102	20/11/2018	18/08/2020
WWD1103MERIGG	WWD1103	23/11/2018	18/08/2020
WTK0111MERIGG	WTK0111	20/02/2020	19/11/2017

The Reconciliation Manager provided the update dates for all of the notifications and this confirmed that all updates were provided in the required timeframe.

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 through included reviewing reports used for profile management, and profile changes.

Registry list as at 31/08/18 and meter installation details report were reviewed to confirm the profiles used during the audit period and confirm the certification details for the affected ICPs.

20,799 ICPs use profiles that require AMI or HHR metering, or a certified control device to be installed.

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

I checked the certification details for all 20,799 ICPs with the profiles above and found:

- 20,788 ICPs (99.9%) had HHR or AMI metering installed, or a certified control device.
- 11 ICPs (0.1%) did not have HHR or AMI metering installed and did not have a certified control device. These were all examined and found:
 - Three have since been corrected to the RPS profile for the correct date and a read was gained for the profile change date as part of the BAU process.
 - Seven ICPs are in the process of being updated but were not at the time of the site audit and are recorded as non-compliance
 - One has since switched away

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

ICPs with profiles inconsistent with their certification and meter types during the 2017 audit were rechecked. The following ICPs did not have HHR or AMI metering, or certified control devices and should have RPS profile. The registry was corrected, but was not backdated to cover the correct period:

- 0000440280WP747 has profiles RPS T07 T23 from 16/05/2017 - 19/09/2017.
- 0001819752TP229 has profiles RPS E08 from 03/05/2017 - 15/11/2017.
- 0000320408TP743 has profiles RPS T07 T23 from 03/06/2016 - 03/09/2017 and from 14/10/2017 onwards.

This is recorded as non-compliance in **sections 2.1 and 6.3**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.3 With: Clause 33 Schedule 10.7 and clause 2(2) Schedule 15.3 From: 03-Jun-16 To: 30-Sep-18	Seven ICPs had a profile requiring control device certification without a certified control device or an AMI meter installed. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as strong as they are sufficient to mitigate the risk most of the time. The audit risk rating is low because Meridian has robust controls in place and a very small number of ICPs were affected.		
Actions taken to resolve the issue		Completion date	Remedial action status
We have manually updated profiles for the seven ICPs identified. Issues obtaining a reading were delaying the correction of these.		Complete	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
Existing controls will continue		Ongoing	

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 ten possible defective meters were identified. In all of the instances Meridian identified the issue and raised a fault with the MEP. Corrections were appropriately processed in all instances and are discussed further 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 it does not exceed the maximum interrogation cycle in the registry.

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

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

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

2(6) – The interrogation systems must record:

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

Audit observation

The data collection and clock synchronisation processes were examined.

HHR

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

NHH and AMI

Manual NHH data has been provided by 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 22 NHH ICPs from the source files to Velocity.

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

Generation

Meridian collects generation information and is responsible for clock synchronisation.

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

Audit commentary

HHR

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

NHH

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

I traced a sample of reads for 18 ICPs from the source files to Velocity. All were recorded and labelled correctly.

MEPs advise Meridian of clock synchronisation events:

- FCLM and WEL networks provide clock synchronisation information within their meter event logs
- Arc, AMS (for AMS and Smartco) and Metrix (for Metrix and Counties Power) email clock synchronisation events as they occur.

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

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 six half hours of a day for five generation station meters. In all cases the data matched.

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

Meridian synchronises Stark against an internet time source continuously during the day. The internet time source was changed in February 2018.

During interrogation, a comparison occurs between data logger and Stark. Clocks are corrected automatically for all differences below five seconds. If the clocks are different by more than five seconds, the clock is adjusted manually. This occurred on 19/2/18 when the new internet data source drifted beyond the five second threshold. This was investigated and corrected by Meridian's contractor, Quasar on 21/2/18. Error reports reviewed for 21/2/18 confirmed that the issue was resolved. The data was loaded to ensure that it aligned with the correct period. I confirmed this by viewing the data

for the affected period and followed it through to the AV130. There have been no further issues with the new internet data source.

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. I reviewed the Stark Global Events reports in September 2018 and checked five examples of clock synchronisation adjustments. All were under five seconds and appropriately corrected by Stark.

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 10 manually read NHH ICPs from the source files to Velocity.

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

Processes for customer and photo reads were reviewed.

Audit commentary

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

Data validation

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

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

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

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

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

The disconnection and reconnection reads returned via the "CJR" system are not received in a format that can be loaded into Velocity as a validated meter read. Where a disconnected ICP with consumption after the last validated reading recorded in Velocity switches out, volume is pushed to the gaining trader as discussed in **sections 4.3** and **4.10**. For ICPs that remain with Meridian, the volume is calculated as forward estimate until a validated read is entered. Once reconnected, scheduled AMI and meter reader reads will be imported and validated, and those reads will be used to calculate historic estimate. Forward estimate continues to be calculated until validated reads are entered, and this contributes to the FE volumes remaining at 14 months reported in **section 12.8**.

Disconnected ICPs with consumption after their last validated reading are reviewed on a monthly report. Reads are manually validated for volumes greater than 200 kWh by the reconciliation team, which enables them to be used by the historic estimate calculation process. Any ICPs with volumes less than this remain as unvalidated reads and are therefore ignored by the historic estimate calculation process. I note that the report also contains reads for sites that have since switched out, so it can't be assumed that the reads reported in the monthly report are within Meridian's period of supply. To better quantify the volume of ICPs potentially affected by this issue, I checked the monthly report for September and compared it to the inactive ICPs from the list file and found it contained 13.9% (689) of all the inactive ICPs. This is recorded as non-compliance.

This affects the accuracy of the CS files which is discussed in **sections 4.3** and **4.10**.

Customer and photo readings

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

Customer readings provided directly by customers are recorded as customer reads in Velocity, and photo readings are recorded as photo reads. Customer and photo reads are only treated as actuals by the historic estimate process if they are validated. Velocity treats all previously validated reads the same regardless of their source. Therefore, a customer or photo read can be validated against another customer or photo read which was previously validated and not a set of validated actual readings from another source as required by the code. This was the case for both ICPs checked for the HE scenarios in **section 12.11**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.6 With: Clause 5 of Schedule 15.2 From: 01-Aug-17 To: 30-Sep-18	Customer reads are treated as actual reads when they are not validated against a set of actual meter reads from another source in some instances. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as weak as Velocity validates all customer reads against validated reads regardless of source. The audit risk impact is low as the volume of reads affected by this is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
System functionality has been changed so that customer and photo reads are always treated as estimates in the settlement process.		Nov 2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

Clause 6 Schedule 15.2

Code related audit information

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

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

Audit observation

The process of the application of meter readings was examined.

Audit commentary

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

All AMI systems have a clock synchronisation function, which ensures correct timestamping.

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

- I traced AMI reads to Velocity for a sample of 12 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 10 ICPs. All were recorded correctly with their read date and time.

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

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

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.

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

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

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

- if no read is received for an AMI meter, it is sent to the data queue to check for reads on other dates and follow up with the MEP if necessary
- if the meter appears to have been changed or removed, it is sent to the metering and field services queue
- if a problem with the meter or its location is preventing reading, it is sent to the billing queue
- if the property or meter could not be found, the ICP is in the wrong reading round, the customer refused access, or stated they were supplied by another retailer, it is sent to the billing queue
- 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 67 items on the missing read queues on 31/10/2017.

Account managed sites are not subject to this process; unread ICPs 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
- 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 (I note from the corrections examined that five of the ten related to non-communicating Arc meters and the meters were replaced in all instances).

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

Billing management reports on no reads weekly. They continue to run campaigns to improve read attainment, focussing on obtaining reads for sites which have not had a reading for 12 months or longer first. The results reported in **section 6.9**, indicate that the overall read rate is improving.

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

A report of ICPs not read during the period of supply was provided, where the period of supply ended between January and June 2018. 65 ICPs were not read during the period of supply. Of these, 55 (85%) were supplied for less than 90 days. I reviewed all ten ICPs which had been supplied by Meridian for more than 60 days and found that all met the exceptional circumstances requirement.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 01-Aug-17 To: 30-Sep-18	Some ICPs were not read during the period of supply. Potential impact: Low Actual impact: Low Audit history: Four times previously Controls: Strong 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. 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
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Strong controls are in place and we will continue with these.		Ongoing	

6.9. NHH meters interrogated annually (Clause 8(1) and (2) Schedule 15.2)

Code reference

Clause 8(1) and (2) Schedule 15.2

Code related audit information

At least once every 12 months, each reconciliation participant must obtain a validated meter reading for every meter register for non half hour metered ICPs, at which the reconciliation participant trades continuously for each 12 month period.

If exceptional circumstances prevent a reconciliation participant from obtaining the validated meter reading, the reconciliation participant is not required to comply with clause 8(1).

Audit observation

The meter reading process was examined. Monthly reports for April to July 2018 were provided.

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

Audit commentary

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
Apr 2018	361	124	600	99.73%
May 2018	363	120	595	99.73%
Jun 2018	358	118	599	99.73%
Jul 2018	368	125	622	99.72%

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

Meridian provided report as at 31 July 2018, which recorded 613 ICPs where a reading had not been obtained for the previous 12 months. Of these, 522 (85%) are manually read sites, and 65 (11%) are remotely read. The remainder have since been decommissioned or are prepay.

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, reads have been gained since the list was supplied.
- In four cases, these are account managed sites and require helicopter or supervised access. The account manager concerned is working with the customer in all instances to facilitate access, therefore exceptional circumstances exist.
- In one case the business is padlocked shut and there is no customer. The revenue assurance team have investigated this site. Exceptional circumstances exist.
- ICP 6501023000CHCE3 is a vacant site pre-pay meter with a non-communicating AMI meter. A letter for vacancy has been sent and returned but no further action has been taken by Meridian. This does not meet the exceptional circumstance requirements.

The reports reviewed for April to July 2018 all met the reporting requirements and were submitted on time.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.9 With: Clause 8(1) and (2) Schedule 15.2 From: 18-Aug-13 To: 30-Sep-18	One ICP where exceptional circumstances were not met. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong 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 one example found the ICP remains unread and the best endeavours requirement has not been met. The impact is assessed as low as only one example was found of ten checked indicating the volume of such instances is small.		
Actions taken to resolve the issue		Completion date	Remedial action status
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Strong controls are in place and we will continue with these.		Ongoing	

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

Code reference

Clause 9(1) and (2) Schedule 15.2

Code related audit information

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

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

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

Audit observation

The meter reading process was examined. Monthly reports for April to July 2018 were provided.

A sample of ten 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
Apr 2018	361	19	2823	98.71%
May 2018	363	15	2500	98.87%
Jun 2018	358	16	2419	98.91%
Jul 2018	368	24	2390	98.92%

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

I reviewed 10 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 six cases the ICPs were in the process of being withdrawn at the time of providing this report and therefore no read is expected.
- In one case a read has since been gained.
- For one ICP a metering issue has prevented a read being obtained within the first four months; this issue is with the metering team to resolve and exceptional circumstances existed.
- In two cases three attempts using two different forms of communication have been used proving exceptional circumstances exist.

Audit outcome

Compliant

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

Code reference

Clause 10 Schedule 15.2

Code related audit information

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

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

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

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

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

Audit observation

NHH data is collected by

- 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 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. As described in **section 6.5**, 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 $\pm 0.1\%$ (± 2 seconds).

Audit observation

HHR

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

Generation

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

Audit commentary

HHR

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

Generation

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

Audit outcome

Compliant

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

Code reference

Clause 18 Schedule 15.2

Code related audit information

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

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

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

Audit observation

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

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

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

I traced reads for a sample of 22 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 six 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 Wells, and MEPs as part of their own audits.

I reviewed NHH meter read data in Velocity from 2008 during the audit. Data is archived for more than 48 months as required by the code.

Password protection is in place for Velocity to ensure unauthorised personnel cannot access raw meter data. I traced reads for a sample of 18 ICPs from the source files to Velocity for NHH meters. The readings were the same for all ICPs, confirming the security of the process

Review of audit trails in **section 2.4** confirmed that reads cannot be modified without an audit trail being created. Users are not able to edit actual meter readings, apart from changing the read status to invalidated, but it is possible to delete the invoice header to remove the associated readings from Velocity and then re-enter the reads as estimates.

Generation

I reviewed Stark meter data from 2013, 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 six 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

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

Defective meters

Where a defective meter is identified a field services job is raised, and the meter is usually replaced.

There are two main correction methods, and a combination of these two methods may be used for a single correction.

- Removal of the defective meter on an estimated closing read. Once the read is validated, it will be used in the calculation on historic estimate. An account credit may be applied if the customer is not to be billed for the full correction.
- Addition of a market settlement adjustment, where a volume is added for settlement, but is not billed to the customer. If the correction affects more than 14 months, consumption is spread over the previous 12 months to ensure it is captured for reconciliation.

The estimated closing read or market settlement adjustment are calculated based on actual meter data if accurate data can be retrieved, or a best estimate of consumption for the affected period using historic data before the defect occurred, or data from the replacement meter. A template is available to assist staff to calculate accurate and consistent estimates using meter readings from accurate periods. Where load is seasonal, the customer is consulted when preparing the estimate.

I reviewed ten examples of defective meters including stopped meters, fire damaged meters, water damaged meters, missing registers, and faulty controllers returning zero readings. For all ten examples reasonable corrections had been processed and flowed through to reconciliation submissions.

Corrections for ICPs 0007152882RN84 and 0000511127NRD5B were in progress or had not been completed at the time of the 2017 audit. These were followed up during the audit and found to be completed.

Multipliers

One example of a meter with an incorrect multiplier was identified during the audit period through the meter deployment programme.

The reads from ICP 0000004866NT89C for the previous meter had a multiplier of three. I checked the correction and confirmed the volume was corrected over the affected period from 30/6/16 to 17/5/2018. This was beyond the 14-month revision period therefore the volumes for July 2016 through to March 2017 have not been reconciled to the market. This is recorded as non-compliance in **section 12.7**.

Bridged meters

Bridged meters are identified through notifications of load side voltage from MEPS, on return of reconnection paperwork, through consumption validation processes including checks of zero consumption, and when customer queries are received.

Corrections for bridged meters are calculated and processed in the same way as corrections for defective meters; consumption is estimated based on the history available.

Four examples of bridged meters were reviewed. For three ICPs reasonable corrections had been processed and flowed through to reconciliation submissions. For ICP 0000555986NR419 the estimated daily kWh applied for one meter was 46 kWh but was expected to be a maximum of 10 kWh. This resulted in estimated over submission of approximately 180 kWh across the five days the meter was bridged. It appears that an error was made when calculating the estimated consumption manually.

Inactive ICPs with consumption

Inactive ICPs with consumption are identified by the revenue assurance team, as discussed in **section 9.5**.

A report of inactive meters with consumption after the disconnection date was provided and contained 222 ICPs. 90 of those had total consumption of -2 to +2 kWh. A sample of eleven ICPs with possible disconnected consumption were reviewed:

- five ICPs had switched out on the last validated read, and the consumption had occurred following their switch to the new retailer
- for the other six ICPs the unvalidated disconnection reads were validated and consumption was submitted.

The sample of ICPs checked were not returned to active status for the period with inactive consumption. Reporting of consumption where an ICP is inactive for part of a period is discussed further in **section 12.11**, and the incorrect statuses are recorded as non-compliance in **section 3.9**.

DUML

Meridian's DUML audits identified some inaccurate databases being used for submission, but no errors with the database kW figures provided to EMS to calculate the submission from. Two DUML ICPs were backdated switch outs and I confirmed that the volumes for the relevant months have been removed from the kW capacity spreadsheet supplied to EMS for submission to be calculated from. Compliance is confirmed.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 8.1 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 From: 09-Aug-18 To: 14-Aug-18	A NHH correction for a bridged period for ICP 0000555986NR419 was not processed accurately. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as strong as they are sufficient to mitigate the risk most incorrect data most of the time. The impact is low because one ICP was affected and the difference was approximately 180 kWh.		
Actions taken to resolve the issue		Completion date	Remedial action status
			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We will continue with our existing controls in this area.		Ongoing	

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

Code reference

Clause 19(2) Schedule 15.2

Code related audit information

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

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

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

Audit observation

Processes for correction of HHR meter readings were reviewed. A sample of two HHR corrections were reviewed.

Audit commentary

Where errors are detected during validation of HHR information, and check metering data is not available, then data from a period with a quantity and profile similar to that expected is used.

HHR

HHR corrections are processed by EMS, and compliance was recorded in their agent audit.

Two corrections for Meridian were reviewed as part of EMS' agent audit and were found to be compliant.

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.

As detailed in **section 6.5**, a clock synchronisation error occurred on 19/2/18 when the new internet data source drifted beyond the five second threshold. This was investigated and corrected by Meridian's contractor, Quasar on 21/2/18. Error reports reviewed for 21/2/18 confirmed that the issue was resolved. The actual data was loaded to ensure that it aligned with the correct period. I confirmed this by viewing the data for the affected period and followed it through to the AV130. Compliant audit trails were generated. No estimation was required in this instance.

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 2018, 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 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.

EMS' agent audit report recorded compliance for HHR corrections.

Audit outcome

Compliant

9. ESTIMATING AND VALIDATING VOLUME INFORMATION

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

Code reference

Clause 3(3) Schedule 15.2

Code related audit information

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

Audit observation

A sample of reads and volumes were traced from the source files to Meridian's systems in **section 2.3**.

Provision of estimated reads to other participants during switching was reviewed in **sections 4.3, 4.4, 4.10** and **4.11**.

Correct identification of estimated reads, and review of the estimation process was completed in **sections 8.1** and **8.2**.

Audit commentary

Readings are clearly identified by Meridian as required by this clause.

As discussed in **section 6.6**, actual reads are available but are not being validated resulting in the volumes being reconciled using forward estimates.

Photo and customer readings are not recorded as actual readings for submission purposes but as noted in **section 6.6**, they are used as validated reads for submission if they can be validated against another validated read. Velocity treats all previously validated reads the same regardless of their source. Therefore, a customer or photo read can be validated against another customer or photo read which was previously validated, instead of a set of validated actual readings from another source.

Compliance for HHR readings is recorded in EMS' agent audit report.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.1 With: Clause 3(3) Schedule 15.2 From: 01-Aug-17 To: 30-Sep-18	Customer reads are treated as actual reads when not validated against a set of validated actual reads from another source in some instances. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Weak Breach risk rating: 3
Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as weak as Velocity validates all customer reads against validated reads regardless of source. The audit risk impact is low as the volume of reads affected by this is low.

Actions taken to resolve the issue	Completion date	Remedial action status
System functionality has been changed so that customer and photo reads are always treated as estimates in the settlement process.	Nov 2018	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	

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

Code reference

Clause 3(4) Schedule 15.2

Code related audit information

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

3(4)(a) - validated meter readings

3(4)(b) - estimated readings

3(4)(c) - permanent estimates.

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 3(5) Schedule 15.2

Code related audit information

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

Audit observation

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

HHR

HHR data is collected by EMS and compliance was assessed as part of their agent audit.

NHH

I traced a sample of meter data from the source files to Meridian's systems as discussed in **section 2.3**, to confirm whether readings were rounded or truncated on import.

Generation

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

Audit commentary

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 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 six 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.

Audit commentary

Where HHR data must be estimated, and check metering data is not available, then data from a period with a quantity and profile similar to that expected is used.

HHR

HHR estimation is completed by EMS, and compliance was confirmed as part of their agent audit.

Generation

Correction processes for generation are described in **section 8.2**. The same process would be used in the unlikely event that estimation was conducted. No estimations were conducted during the audit period.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 15.2

Code related audit information

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

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

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

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

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

NHH data is validated by several processes.

Meter reader validation

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

Read import validation

The second level of validation occurs when the data reaches Meridian. I reviewed Meridian's Velocity validation list, and work queues within Velocity.

File manager validations are completed on read import, and check for file format errors, file corruption, read dates outside of expected parameters, and invalid metering information. These errors are sent to a billing team exception queue and the file is normally returned to the meter reading contractor for resolution.

Billing validation

Once imported, billing validations are completed, and exceptions are reviewed by the billing team. These identify:

- meter reads inconsistent with metering information, including a different number of digits or decimals to what is expected
- a reading with a no read code provided
- no reading without a no read code provided
- invalid read type code
- negative consumption
- unexpected consumption, including: daily average consumption exceeding expected limits for the customer price plan, consumption on removed registers, high or low charges, consumption on vacant ICPs, and meter readings provided on an unmetered sequence
- unexpected read dates, including: reads before scheduled date, billing cycle too long or too short, and reads after contract expiry
- multiple readings on the same day.

Reads for ICPs with a non-billable status (such as disconnected or vacant) are loaded into the Velocity consumption history but are not billed to the customer. They are validated if they are more than 200 kWh as described in **section 6.6**.

Warnings are created where there is no consumption to bill, no reading, the customer is to be finalised or an out of cycle read is booked.

Zero consumption

Zero consumption is monitored on Arc smart fleet, because there are known problems with controllers. Arc send through lists of ICPs not recording consumption. This was evident when I examined the NHH corrections sample which contained five examples.

Meridian have deployed additional reporting that identifies all sites with zero consumption. Further refinement of this report is required to exclude the large number of ICPs with seasonal or zero consumption including irrigators, holiday homes and earthquake affected sites. This will then provide Meridian with good visibility of unexpected long term zero consumption sites. Therefore, whilst a report has been produced, the volume of ICPs reported in it means that zero consumption is not being monitored as expected. This is recorded as non-compliance below. Drops in consumption are detected at the time they occur, through the billing validations.

Vacant ICPs with consumption

All vacant ICPs go through the vacant disconnection process, described in **section 3.9**. Letters are sent to the property, and vacant sites are not disconnected unless Meridian can confirm that electricity consumption is very low or zero.

Inactive ICPs with consumption

Disconnected ICPs with consumption are not identified through the billing validations, ICPs with a disconnected status are not billed.

The revenue assurance generates a daily report of inactive ICPs with consumption. The report shows the date the ICP became inactive and compares the first reading on or after the inactive date to the latest reading received. The revenue assurance team work through the report prioritising the ICPs with the highest consumption while inactive first. Checks are completed to determine whether the consumption is genuine, or relates to meter reading issues, a meter fault, or a reconnection performed by a new gaining retailer.

If the consumption appears to be genuine, the ICP is put through the vacant process and then disconnected. The status is not normally corrected, and the reads are not validated unless a customer signs up and the reads can be recorded against their account.

The reconciliation team also review this report and validate readings where consumption is over 200 kWh, so that the reads will be used by the historic estimate calculations.

Bridged meters

Meridian does not initiate meter bypass instructions to any MEP or contractor. If they request a remote reconnection, the MEP is expected to either conduct this, or will make necessary arrangements for reconnection without bypassing. Where it is necessary to bypass a meter for safety reasons, Meridian's contracts with service providers specify that they must return within one to two business days to unbridge the meter. Corrections for bridged consumption are discussed in **section 8.1**.

Reconciliation submissions

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 9.5 With: Clause 16 Schedule 15.2 From: 01-Aug-17 To: 30-Sep-18	Zero consumption not monitored for all ICPs. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate as they will mitigate risk most of the time but not in all cases of zero consumption occurring. The impact is low as drops in consumption will identify most instances.		
Actions taken to resolve the issue		Completion date	Remedial action status
We are working to refine our zero consumption reporting so this is more meaningful.		July 2019	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
We will continue with our existing controls in this area.		Ongoing	

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

Code reference

Clause 17 Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

Audit observation

I reviewed the generation, HHR, and AMI data validation processes, including meter event logs and validation checks.

Audit commentary

HHR

EMS interrogates meters regularly during the month, so there is little risk that data will be overwritten.

EMS' validates HHR meter readings and refers any issues to Meridian, so that the Meridian account managers can check the consumption with their customers and confirm whether it appears correct.

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

EMS' agent audit found their validation processes were compliant, apart from not monitoring phase failure events for one meter type because of a configuration issue for that meter type in EMS' event notification system. This is recorded as non-compliance below. The configuration was corrected in July 2018 once the issue was discovered, and the events were reviewed. This identified two Meridian ICPs where corrections for phase failure were required, and the corrections were found to be processed accurately.

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 MEPs via SFTP. Meter event information is provided and reviewed as follows:

MEP	Provided by	Meter event information provided and reviewed
Arc	-	Arc review their meter events, and provide load side voltage events and meter communication issues to Meridian. Arc's meter event reporting is expected to be expanded to cover more event types from December 2018.
AMS	AMS	Full event information is provided via SFTP.
Smartco		AMS have agreed to review the event information and provide any events that require action by Meridian via email.
Metrix	Metrix	Full event information is provided via SFTP.
Counties Power		Metrix have agreed to review the event information and provide any events that require action by Meridian via email.
FCLM	FCLM	Full event information is provided via SFTP. The data is reviewed by Meridian and field services jobs are raised to investigate and resolve issues as required.
WEL Networks	WEL Networks	Full event information via SFTP, which is reviewed by Meridian. The data is reviewed by Meridian and field services jobs are raised to investigate and resolve issues as required.

I reviewed examples of meter event information provided by Arc, Metrix, AMS, FCLM, and WEL Networks. A sample of events were checked and found that they had been actioned appropriately. The events reviewed included communications issues, tampering alerts, reverse rotation, and load side voltage.

Generation

Stark interrogation occurs every half hour, so there is little risk that data will be overwritten.

Meridian validates data against Transpower SCADA data, and aggregation meters are compared to the sum of the individual meters. The SCADA data is not derived from the revenue metering, so it provides a sound basis for validation.

I reviewed evidence of validity checks for generation metering data, including:

- checks for missing data; the sum of the Stark data is compared to the Transpower SCADA data to ensure data is not missing and there is also a separate check for missing data each business day
- checks for invalid dates and times; Stark will only collect data if the date and time of the logger matches that to the system to within five seconds
- checks of unexpected zero values; sometimes zeros are present and are correct and the comparison with SCADA data ensures unexpected zeros are identified
- comparison with expected flow patterns; generation data does not have an expected flow pattern, so consumption is graphed against SCADA data to ensure unexpected zeros and anomalies are identified, a comparison is also completed against the capacity for the meter

- 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		
<p>Audit Ref: 9.6</p> <p>With: Clause 17</p> <p>Schedule 15.2</p> <p>From: 01-Dec-17</p> <p>To: 31-Oct-18</p>	<p>EMS did not check event logs for phase failure for some meter types prior to July 2018.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Twice previously</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are rated as strong, because event information is reviewed for all MEPs except Arc, and Meridian is attempting to obtain meter event information from Arc. EMS' agent audit assessed the controls over event logs as strong.</p> <p>The impact is assessed to be low. The EMS issue relating to checking meters for phase failure was cleared from July 2018, and corrections were processed.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
We have recently been notified that Arc will begin providing time sync and power loss/restore information in December. We will put in place processes to review and take action on relevant events.		28 February 2019	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	

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 commentary

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 commentary

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 commentary

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 give notice to the reconciliation manager if it is to commence or cease trading electricity at a point of connection using a profile with a profile code other than HHR, RPS, UML, EG1, or PV1 at least five business days before commencing or ceasing trader.

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

Audit observation

A registry list for 01/01/18 to 03/09/18 was reviewed for the audit period to confirm the profiles used. Processes to create buying and selling notifications were 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. They are normally created where EMS advises they are required because file has failed the reconciliation manager's file checker process.

There is no facility to enter new profiles against an existing NSP on the reconciliation manager portal. The registry list was reviewed to identify the start and end dates for non-standard profiles at each NSP during the audit period. A sample of five were reviewed to determine whether notification was provided on time. No trading notifications were provided for profiles TOC TON on NSP OAM0331 and DST on NSP TUI1101. Both commenced in February 2018. No notification was provided because the profiles were used at NSPs which already had trading notifications in place.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 11.1 With: Clause 15.3 From: 01-Feb-18 To: 01-Feb-18	No trading notification was provided for TOC TON and DST profiles. Potential impact: None Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	There is no impact, Meridian Energy confirmed that the reconciliation manager's system recorded the profile correctly, because the allocation data received from the reconciliation manager included this profile.		
Actions taken to resolve the issue		Completion date	Remedial action status
Meridian does not intend to take any action. There is no facility to submit the notification required by this clause where a trading notification already exists for the NSP and no impact.		N/A	Disputed
Preventative actions taken to ensure no further issues will occur		Completion date	

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 15 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 HHR NSPs and ten NHH 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 12 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
Aug 2017	0.02%	0.02%	0.02%	0.02%	-
Sep 2017	0.01%	0.02%	0.02%	0.02%	-
Oct 2017	0.02%	0.02%	0.02%	0.02%	-
Nov 2017	0.02%	0.02%	0.02%	0.02%	-
Dec 2017	0.02%	0.02%	0.01%	0.01%	-
Jan 2018	0.04%	0.01%	0.01%	0.01%	-
Feb 2018	-0.01%	0.01%	0.00%	-	-
Mar 2018	0.08%	0.00%	0.01%	-	-
Apr 2018	0.03%	0.01%	0.01%	-	-
May 2018	0.02%	0.02%	0.02%	-	-
Jun 2018	0.03%	0.03%	-	-	-
Jul 2018	0.07%	0.09%	-	-	-

I reviewed ten NSP level ICP days differences.

- Nine differences related to backdated switches.
- One difference was caused by the meter start read not being entered into Velocity. This was due to a process change made in June 2017. The removed meter read was entered and reconciled but the start read was missing for the new meter. Therefore, the first actual read was the first read validated after the meter change, resulting in missing ICP days and consumption not being reconciled. Any such incidents are being monitored via reporting in place. Corrections of these have commenced for R14 from August 2018 (i.e. R14 June 17 which is when this issue started occurring). The meter change process has been changed from August 2018 to ensure start reads are entered into Velocity correctly. Approximately 100 potential ICPs are being identified per month and these are all checked and corrected if required.

The event detail report for 1/1/18 to 2/9/18 was reviewed to identify upgrades from NHH to HHR, and downgrades from HHR to NHH. I reviewed a sample of four upgrades and four downgrades. In all cases the metering was replaced at the time of the upgrade or downgrade.

I found the same issue as reported in the last audit. 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. This was carried out correctly in two instances but for the other two examples,

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:

- ICP 0004450061MLD04 HHR meter was removed 12/7/18 but Meridian did not update to NHH until 14/7/18. Certified metering was not in place until 20/11/18 (certification is the responsibility of the MEP in this instance).
- ICP 0006679161RN2AB was reconnected on 26/6/18 (this previously was an HHR site but metering was removed) and the NHH metering was certified on 26/6/18 but the meter change was processed effective 27/6/18.

For the upgrades, ICP 1001163167LC1EE the meters were installed for the correct day and consumption was allocated correctly. For the remaining three upgrades checked the NHH meter was removed for the day before NHH meters were closed in Velocity, and the new meters were opened from date of HHR upgrade resulting in one ICP day being missed, but all consumption was 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 12.13** for profile changes.

The two ICPs reported in 2017 requiring correction due to upgrades haven't been corrected during the audit period. I have included the details below for completeness:

- 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.

Where ICP status is recorded incorrectly, ICP days may be reported incorrectly. ICPs with incorrect statuses or status dates are recorded in **sections 3.8** and **3.9**. This is recorded as non-compliance in **section 2.1** and **12.7**.

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 11.2</p> <p>With: Clause 15.6 of part 15</p> <p>From: 01-Jun-17</p> <p>To: 01-Aug-18</p>	<p>ICP days incorrect due to meter start read being omitted from reconciliation for one example.</p> <p>Two changes from HHR to NHH, and four changes from NHH to HHR had incorrect meter installation dates recorded in Velocity, resulting in one ICP day being omitted per ICP.</p> <p>Where ICP statuses or status dates are recorded incorrectly, incorrect ICP days may be reported.</p> <p>Potential impact: Low</p> <p>Actual impact: None</p> <p>Audit history: Once previously</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p>

Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are rated as weak, because six out of eight of the upgrade/downgrade examples checked were processed incorrectly.</p> <p>The impact is rated as low because overall the number of ICP days affected is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>While we did review both our upgrade and downgrade processes following the last audit it appears the changes made have not resolved all the identified issues.</p> <p>We will conduct a further detailed review of these processes.</p>		July 2019	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

Clause 15.7

Code related audit information

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

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

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

Audit observation

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

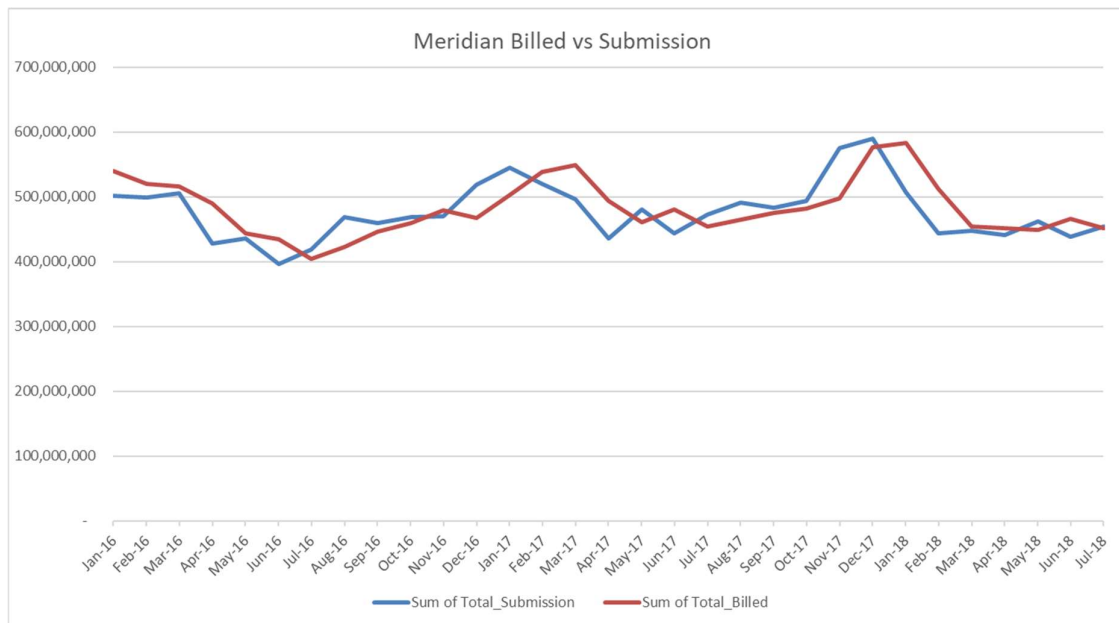
GR130 reports for January 2016 to July 2018 were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

Audit commentary

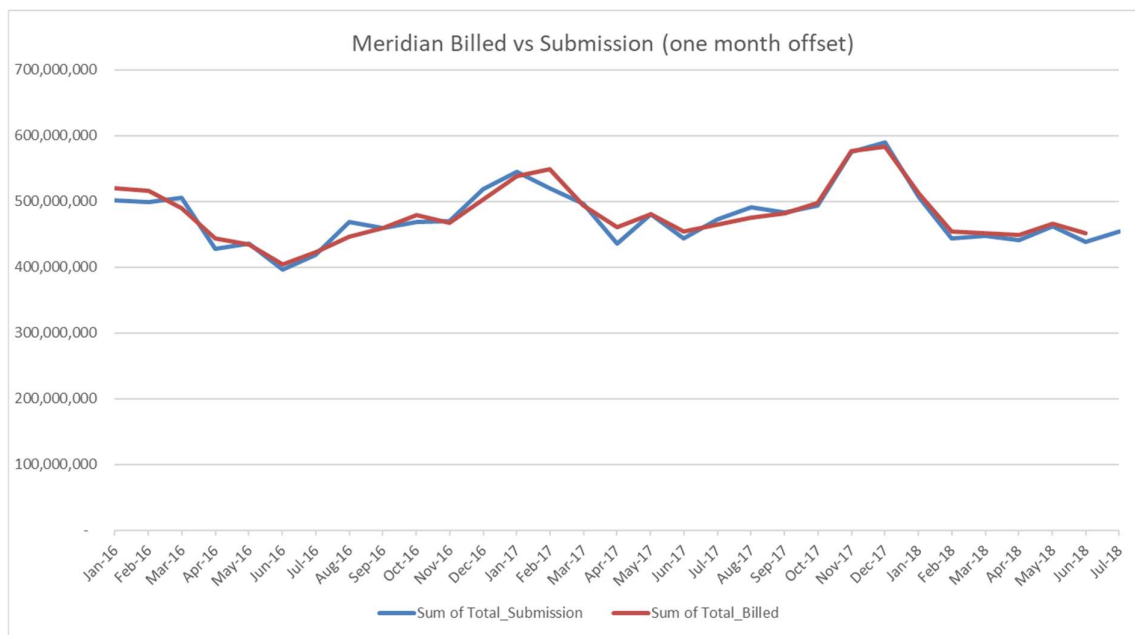
The process for calculating and submitting electricity supplied information was reviewed.

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 are based on readings and included in the AV120 based on the read date.

I also checked the difference between submission and electricity supplied information for a 31-month period, and the results are shown chart below. The total difference is 0.1% for the two years ended July 2018 and 0.6% for the year ended July 2018 (billed higher than submission).



The differences between billed and submission data primarily relate to timing; once the billing and reconciliation periods are aligned the differences are very small.



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.

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 either of the HHRAGGS files, and the Electricity Authority confirmed this was acceptable during EMS' 2017 audit.

I confirmed that the process for the calculation and aggregation of HHR data is correct, by matching HHR aggregates information with the HHR volumes data for 12 submissions.

The GR090 ICP Missing files were examined for August 2017 to July 2018. An extreme case sample of all 12 ICPs missing from four or more revisions were checked.

Audit commentary

EMS' processes for provision of HHR aggregates information were assessed during their agent audit. Non-compliance was found because the HHR aggregates report contains submission information, not electricity supplied information as specified under clause 15.8. Although the reports EMS' produces are consistent with the Reconciliation Manager Functional Specification, this is recorded as technical non-compliance below.

I checked the process for aggregation of HHR data is correct, by matching HHR aggregates information to the volumes, and found that the difference related to generation only ICPs. Compliance was confirmed.

The GR090 ICP Missing files were examined for all revisions for August 2017 to July 2018. I checked an extreme case sample of 12 ICPs missing for four or more revisions and found they related to:

- generation only ICPs, which are excluded from the aggregates files; the Code does not specifically state whether this information is required or not, but the file format has a field for flow direction, however the Electricity Authority has confirmed that generation quantities are not required in the file.
- backdated switches and switch withdrawals
- updates to the trader for new connections
- backdated updates to submission type.

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 11.4 With: Clause 15.8 From: 01-Aug-17 To: 31-Oct-18	HHR aggregates file does not contain electricity supplied information. Potential impact: None Actual impact: None Audit history: Three times previously Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The issue relating to content of the aggregates file is an error in the code, Meridian is providing submission information as expected.		
Actions taken to resolve the issue		Completion date	Remedial action status
Meridian will not be taking any action in relation to this technical non compliance.		N/A	Disputed
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 1 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**.
- NHH submissions are created using Velocity. 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**.
- NSP volumes submissions are discussed in **section 12.6**.

Audit commentary

HHR

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

NHH

Meridian prepares NHH submissions using reconciliation consumption generated in Velocity.

I reviewed submissions for a sample of:

- ten ICPs with injection/export registers and confirmed that generation consumption is correctly submitted
- ten ICPs with vacant consumption and confirmed that vacant consumption was reported for all
- 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 in the registry for the relevant consumption period at the time the reconciliation participant assembles the submission information. Volume information must be derived in accordance with Schedule 15.2.

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

Audit observation

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

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

The process to ensure that AV080 submissions are accurate was discussed. The process for aggregating the AV080 was examined by checking five NSPs with a small number of ICPs.

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

Audit commentary

HHR

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

Meridian validates the submissions produced by EMS prior to their submission on business day four and 13. Lavastorm is used to generate reports comparing registry data, aggregates files, volumes files, ICP days files and EIEP3 files (which are outside the scope of this audit). The data is compared, and any anomalies are reported.

I reviewed a sample of these validations and noted that Meridian staff had reviewed anomalies and added comments. Where issues or concerns are identified, these are communicated to EMS for action. If EMS updates any data, it is sent back to Meridian for rechecking using Lavastorm.

NHH

The process for the calculation of NHH volumes was examined by checking five NSPs with a small number of ICPs. NHH volume calculation was confirmed to be correct.

NHH data is validated prior to submission. Fields used for reconciliation submission aggregation are reconciled to the registry prior to the initial and wash up submissions being created. Any ICPs with consumption that is negative or over 100,000 kWh are checked.

Zeroing occurs automatically as part of the comparison to the trader notification table in Velocity. If an open trading notification is present but no submission data has been generated, Velocity automatically inserts a zero line.

GR170 and AV080 files for February to March 2017 (r14), September to November 2017 (r7), and February to May 2018 (r3) were compared, and no issues were identified.

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

Review of the NSP table confirmed that Meridian is not a grid owner.

Audit commentary

Review of the NSP table confirmed that Meridian is not a grid owner.

Audit outcome

Not applicable

12.5. Provision of NSP submission information (Clause 15.10)

Code reference

Clause 15.10

Code related audit information

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

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

Audit observation

A registry list was reviewed to confirm Meridian does not own any local or embedded networks.

Audit commentary

Meridian is not required to provide NSP submission information.

Audit outcome

Not applicable

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

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

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

Audit observation

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

Data for a sample of five NSPs for the first six trading periods of one day was matched from the AV130 submission files to the raw SCADA data.

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

Audit commentary

Meridian creates AV130 submissions for grid connected generation.

Data for 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.

The following issues which impacted on the accuracy of volume information submitted to the reconciliation manager were identified.

- The volume for one ICP with an incorrect multiplier was not applied for the available revision period, therefore the volumes for July 2016 through to March 2017 have not been reconciled to the market as detailed in **section 8.1**.
- A NHH correction for a bridged period for ICP 0000555986NR419 was not processed accurately, resulting in over submission of approximately 180 kWh as described in **section 8.1**. The two ICPs identified in 2017 that are detailed in **section 11.2**, with consumption misallocated due to the incorrect meter removal dates in Velocity have not been corrected during the audit period.
- 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.
- Start meter reads are not always being validated in Velocity resulting in the consumption being missing from the start read date until the first actual read is validated. This is an issue that was identified in August 2018 (via ICP day discrepancy reporting). The meter change process has been modified to correct this and reporting has been put in place to identify ICPs affected. This is detailed further in **section 11.2**.
- In some cases, the switch event read applied by Meridian related to a date prior to the switch event date. This is discussed in **sections 4.3** and **4.10**. While Meridian applied the CS read for submission, the read related to a different date, and will result in inaccurate submission.
- Disconnection and reconnection reads are not routinely entered in Velocity, as discussed in **sections 3.8, 3.9** and **6.6**. This can result in consumption being attributed to incorrect dates. Consumption may not be reported if it falls after disconnection in certain circumstances.
- Some ICPs were reported with profiles that were inconsistent with their meter certification and type, and are discussed in **section 6.3**.

The following issues which impacted on the accuracy of ICP days information submitted to the reconciliation manager were identified in **section 11.2**:

- ICP days were incorrectly reported for two ICPs downgraded from HHR to NHH, and four ICPs upgraded from NHH to HHR, resulting in one ICP day being omitted per ICP
- ICP days were incorrect due to a meter start read being omitted from reconciliation for one example
- where ICP status is recorded incorrectly, ICP days may be reported incorrectly; ICPs with incorrect statuses or status dates are recorded in **sections 3.8** and **3.9**.

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 12.7</p> <p>With: Clause 15.12</p> <p>From: 01-Dec-17</p> <p>To: 31-Oct-18</p>	<p>Some submission information was inaccurate.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>

Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls over accuracy of submission information are moderate, as there are controls in place to validate submission information and identify and correct errors.</p> <p>The impact is rated as low, most of the issues identified affected low volumes or ICP days and a small number of ICPs.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
We have commented on specific issues raised in the relevant sections of this report.			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Code reference

Clause 4 Schedule 15.2

Code related audit information

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

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 January to March 2017 to identify any forward estimate still existing.

Audit commentary

Review of the 14 month revisions for January to March 2018 showed that not all estimated meter readings had been replaced with validated meter readings as required by the Electricity Authority. This is recorded as non-compliance below.

Month	Forward estimate
Jan-17	1,257,311
Feb-17	866,985

Month	Forward estimate
Mar-17	1,342,496
Total	3,466,792

I examined five NSPs at ICP level where forward estimate still existed at 14 months. As reported in the last audit, the forward estimate remained because an ICP or ICPs had switched out on estimated readings, and these readings were not treated as permanent estimates by the historic estimate calculation.

In addition to this as discussed in **section 6.6**, disconnection reads are not always being validated in Velocity resulting in forward estimates being used when an actual read is available.

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. Meridian is now validating these reads and I found no examples of switch in reads not being validated.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 4 of Schedule 15.2 From: 01-Aug-17 To: 30-Sep-18	Some estimates not replaced at R14. Potential impact: Medium Actual impact: Medium Audit history: Four times previously Controls: Moderate Breach risk rating: 4
Audit risk rating	Rationale for audit risk rating
Medium	Controls are rated as moderate as they are sufficient to ensure estimates are replaced by revision 14 most of the time, but there is room for improvement. Total forward estimate for the three months reviewed was 3,466,792 kWh – 1,257,311 kWh for January 2017, 866,985 kWh for February 2017 and 1,342,496 for March 2017.

Actions taken to resolve the issue	Completion date	Remedial action status
We have implemented a change to use actual validated reads in the switching process where these are available. This is expected to reduce FE volumes still present at the 14mth revision.	Nov 2018	Investigating
We will investigate viability of a system change to treat final switch estimates as permanent estimates in the settlement process.	Mar 2018	
Preventative actions taken to ensure no further issues will occur	Completion date	

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

Code reference

Clause 2 Schedule 15.3

Code related audit information

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

- *half hour volume information for each ICP notified in accordance with clause 11.7(2) for which there is a category 3 or higher metering installation (clause 2(1)(a))*
- *for each ICP about which information is provided under clause 11.7(2) for which there is a category 1 or category 2 metering installation (clause 2(1)(b)):*
 - a) half hour volume information for the ICP; or*
 - b) non half hour volumes information calculated under clauses 4 to 6 (as applicable).*
 - c) unmetered load quantities for each ICP that has unmetered load associated with it derived from the quantity recorded in the registry against the relevant ICP and the number of days in the period, the distributed unmetered load database, or other sources of relevant information (clause 2(1)(c))*
- *to create non half hour submission information a reconciliation participant must only use information that is dependent on a control device if (clause 2(2)):*
 - a) the certification of the control device is recorded in the registry; or*
 - b) the metering installation in which the control device is location has interim certification.*
- *to create submission information for a point of connection the reconciliation participant must apply to the raw meter data (clause 2(3)):*
 - a) for each ICP, the compensation factor that is recorded in the registry (clause 2(3)(a))*
 - b) for each NSP the compensation factor that is recorded in the metering installations most recent certification report (clause 2(3)(b)).*

Audit observation

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

Aggregation and content of reconciliation submissions was reviewed, and the registry list as at 31/08/18 was reviewed.

Audit commentary

Compliance with this clause was assessed.

- HHR submission preparation was reviewed as part of EMS' agent audit, and found to be compliant. HHR volume is reported for all ICPs with a meter category 3 or higher.
- Unmetered load submissions were checked in **section 12.2**, and found to be correct.
- Certification of control devices was reviewed in **section 6.3**. Controls were strong, but a small number of non-compliances were identified.
- Loss and compensation arrangements were reviewed in **section 8.3**, and found to be compliant.
- Aggregation of the AV080 and AV110 submissions are covered in **sections 13.2** and **11.2** respectively.

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 kWh_{Px} must be prorated as determined by the reconciliation participant using its own methodology or on a flat shape basis using the relevant number of days that are within the consumption period and within the period covered by kWh_{Px}.

Audit observation

To assist with determining compliance of the Historical Estimate (HE) processes, Meridian were supplied with a list of scenarios, and for some individual ICPs a manual HE calculation was conducted, and compared to the result from Velocity.

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.

The process for managing shape files was examined. SASV are downloaded from the reconciliation manager portal along with the other reconciliation reports. Following download, they are imported manually into Velocity using the interface file manager.

Test	Scenario	Test expectation	Result
a	ICP becomes Active part way through a month	Consumption is only calculated for the Active portion of the month.	Compliant
b	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
c	ICP become Inactive then Active again within a month.	Consumption is only calculated for the Active portion of the month.	Compliant
d	ICP switches in part way through a month on an estimated switch reading	Consumption is calculated to include the 1st day of responsibility.	Compliant
e	ICP switches out part way through a month on an estimated switch reading	Consumption is calculated to include the last day of responsibility.	Compliant
f	ICP switches out then back in within a month	Consumption is calculated for each day of responsibility.	Compliant
g	Continuous ICP with a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
h	Continuous ICP without a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant

Test	Scenario	Test expectation	Result
i	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant
j	Unmetered load for a full month	Consumption is calculating based on daily unmetered kWh for full month.	Compliant
k	Unmetered load for a part month	Consumption is calculating based on daily unmetered kWh for active days of the month.	Compliant
l	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Compliant
m	ICP with a customer read during the month	Customer reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Compliant
n	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate, unless they have been validated against a set of validated readings from another source	Compliant
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly	Compliant

The HE calculations were correct in all scenarios checked, but the non-validation of reads is resulting in volume not being submitted or misallocated. The treatment of estimated switch reads when calculating historic estimate is recorded as non-compliance in **sections 12.7 and 12.8**. The validation of customer and photo reads is recorded as non-compliance in **sections 6.6 and 9.1**.

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
Mar 2017	1	2	3	3	271
Apr 2017	5	9	8	8	272
May 2017	0	1	2	2	273
Jun 2017	0	0	0	-	271
Jul 2017	0	0	0	-	279
Aug 2017	0	0	1	-	282
Sep 2017	0	0	0	-	285
Oct 2017	0	2	3	-	286
Nov 2017	6	7	9	-	286
Dec 2017	0	2	2	-	288
Jan 2018	2	4	-	-	289
Feb 2018	7	9	-	-	294
Mar 2018	6	6	-	-	294

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
Apr 2018	0	1	-	-	298

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Mar 2017	3.71%	3.10%	5.76%	5.57%
Apr 2017	5.76%	8.66%	8.26%	8.25%
May 2017	-1.48%	-2.58%	-2.77%	-2.85%
Jun 2017	2.38%	0.53%	0.47%	-
Jul 2017	-3.30%	-5.43%	-6.23%	-
Aug 2017	1.25%	0.75%	0.46%	-
Sep 2017	0.59%	-0.41%	-0.55%	-
Oct 2017	0.54%	-1.12%	-1.24%	-
Nov 2017	-2.17%	-7.90%	-8.02%	-
Dec 2017	1.19%	-0.70%	-0.76%	-
Jan 2018	5.53%	4.52%	-	-
Feb 2018	0.73%	3.21%	-	-
Mar 2018	2.32%	4.37%	-	-
Apr 2018	-4.65%	-5.13%	-	-

I reviewed six balancing area differences where the variation between revisions was more than $\pm 15\%$ and $\pm 100,000$ kWh – FRANKTODUNEG (April 2018), CLYDE00DUNEG (March 2018), CROMWELDUNEG (March 2018), CJC0011CBREE (March 2018), SOUTHLDTPCOG (August 2018) and ASHBURTEASHG (May 2017). The first four balancing areas differences were due to a low HE portion in the initial submission being replaced with higher than estimated actual reads in subsequent submissions. The remaining two balancing areas were due to a high proportion of irrigation in these areas. 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 With: Clause 6 of Schedule 15.3 From: 01-Aug-17 To: 30-Sep-18	The accuracy threshold was not met for all months and revisions. Potential impact: Low Actual impact: Low Audit history: Four times previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, as they are sufficient to ensure data is within the accuracy threshold most of the time. Initial data is replaced with revised data, and washed up.		
Actions taken to resolve the issue		Completion date	Remedial action status
Participant comment		Proposed or actual date	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We will continue with our current controls in this area.		Ongoing	

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

Code reference

Clause 7 Schedule 15.3

Code related audit information

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

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

Audit observation

The event detail report for 1/1/18 to 2/9/18 was examined to identify ICPs which had a profile change during the report period.

A diverse sample of 15 ICPs with profile changes were reviewed, including upgrades and downgrades, generation profiles, and non-standard profiles, to confirm that there was an actual or permanent estimate reading on the day of the profile change.

Audit commentary

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**.

A sample of 15 profile changes were checked and found an actual read was gained on the day of the profile change.

The issues with manual processing of upgrades to HHR and downgrades to NHH found in the last audit were still evident in this audit. This is resulting in actual readings not being applied effective from the date of the profile change for five of the eight 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 With: Clause 7 Schedule 15.3 From: 01-Aug-17 To: 30-Sep-18	Reads or permanent estimates were not applied to the profile change date for two ICPs downgraded from HHR to NHH, and three meters upgraded from NHH to HHR. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as moderate, as they 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. 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
Refer to our comments under 11.2		Identified
Preventative actions taken to ensure no further issues will occur	Completion date	

13. SUBMISSION FORMAT AND TIMING

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

Code reference

Clause 8 Schedule 15.3

Code related audit information

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

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

Audit observation

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

Aggregation of NHH volumes is discussed in **section 12.3**, aggregation of HHR volumes is discussed in **section 11.4** and NSP volumes are discussed in **section 12.6**.

Audit commentary

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

- NSP code
- reconciliation type
- profile
- loss category code
- flow direction
- dedicated NSP
- consumption period.

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

Audit outcome

Compliant

13.2. Reporting resolution (Clause 9 Schedule 15.3)

Code reference

Clause 9 Schedule 15.3

Code related audit information

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

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

Code reference

Clause 10 Schedule 15.3

Code related audit information

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

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

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

Audit observation

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

I reviewed nine months of AV080 reports to 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
Jan 2017	-	-	199	355
Feb 2017	-	-	211	357

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Mar 2017	-	-	213	361
Sep 2017	-	362	-	374
Oct 2017	-	360	-	375
Nov 2017	-	365	-	376
Feb 2018	358	-	-	383
Mar 2018	364	-	-	383
Apr 2018	373	-	-	388

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
Jan 2017	-	-	99.57%
Feb 2017	-	-	99.70%
Mar 2017	-	-	99.47%
Sep 2017	-	98.79%	-
Oct 2017	-	98.75%	-
Nov 2017	-	99.16%	-
Feb 2018	97.35%	-	-
Mar 2018	97.34%	-	-
Apr 2018	97.49%	-	-

As detailed in **sections 6.6, 12.7 & 12.8**, HE targets are not being achieved due to FE not being replaced for ICPs that have switched out on estimated readings, and these readings were not treated as

permanent estimates and disconnection reads that are not always being validated in Velocity resulting in forward estimates being used when an actual read is available.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 13.3 With: Clause 10 of Schedule 15.3 From: 01-Aug-17 To: 30-Sep-18	Historic estimate thresholds were not met for some revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk of not meeting the threshold most of the time, but there is room for improvement. The audit risk rating is low, as Meridian were reasonably close to the target in all cases.		
Actions taken to resolve the issue		Completion date	Remedial action status
We have implemented a change to use actual validated reads in the switching process where these are available. This is expected to reduce FE volumes still present at the 14mth revision.		Nov 2018	Identified
We will investigate viability of a system change to treat final switch estimates as permanent estimates in the settlement process.		Mar 2018	
Preventative actions taken to ensure no further issues will occur		Completion date	

CONCLUSION

This audit of Meridian's systems and processes found 35 non-compliances, and makes two recommendations. No issues are raised.

Meridian continue to make good progress in improving their level of compliance for registry and read information management. Progress has been made in the management of ANZSIC codes, the timeliness of MEP nominations, 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 unmetered load, including DUMML compliance and ICPs with standard unmetered load over 3,000 and 6,000 kWh
- validation of customer readings - customer readings are currently validated against other validated readings including previous customer readings, but should be validated against a set of readings from another source.

Overall, switching processes are well managed with most files sent on time. There were some issues with the content of CS files, particularly for ICPs where there is no active customer. Meridian intends to make some enhancements in this area, including applying AMI readings in CS files where a scheduled billed reading is not available for the event date.

Submission related processes are generally operating well with an experienced team overseeing this area. Some process issues are still present, including:

- existence of forward estimate at revision 14, because some final estimates are not being correctly labelled as permanent estimates
- disconnection and reconnection reads are not consistently being entered, which can lead to inactive consumption being recorded in the wrong period or not reported
- ICP days and consumption are not consistently reported correctly for ICP upgrades and downgrades.

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 68 which results in an indicative audit frequency of three months. I have considered this result in conjunction with Meridian's responses and my recommendation for the next audit date is 12 months.

PARTICIPANT RESPONSE

Meridian has reviewed this report and their comments are contained within its body.