Electricity Industry Participation Code Reconciliation Participant Audit Report

for

Bosco Connect (EZYN)

Prepared by Rebecca Elliot – Veritek Limited

Date of Audit: 26/06/17 to 27/06/17

Date Audit Report Complete: 25/08/17

Audit Report Due Date: 28/08/17

Executive Summary

This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of **Bosco Connect Limited** (**Bosco),** to support their application for renewal of certification in accordance with clauses 5 and 7 of schedule 15.1. The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits V7.1

This audit is for the EZYN participant code only.

The audit found 26 non-compliance issues, and four recommendations are made. Six of the issues relate to switching and five relate to registry management. The area of registry validation and CS file content requires some improvements in order to resolve these. The other 15 issues relate to various areas.

There have been some improvements since the last audit with stronger controls in place around the updating of status in Ezy Business and the management of field contractors.

Some of the matters raised have led to incorrect information being provided to the Reconciliation Manager. They are as follows:

- distributed generation consumption is not reported
- one ICP with a category 3 meter has submission type NHH
- 11 ICPs with consumption while disconnected have not had all their consumption while disconnected reported

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

The matters raised are shown in the tables below:

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Relevant information	2.1	11.2 of part 11	Some registry discrepancies identified and not being checked.	Moderate	Low	2	Identified
Changes to registry	3.3	10 of schedule 11.1	Registry not updated within 5 business days of the event.	Moderate	Low	2	Identified
Provision of information	3.5	9 of schedule 11.1	Registry information not provided within 5 business days of commencement of supply for 6 new connections.	Strong	Low	1	Identified
ANZSIC codes	3.6	9(1)(k) of schedule 11.1	6 active ICPs with no or incorrect ANZSIC codes assigned.	Weak	Low	3	Identified
Active status	3.8	17 of schedule 11.1	Incorrect active dates recorded for two reconnected ICPs.	Moderate	Low	2	Disputed
Inactive status	3.9	19 of schedule 11.1	Status misalignment between Ezy Business and the registry for two ICPs.	Moderate	Low	2	Investigating
Switching	4.2	3 & 4 of schedule 11.3	Incorrect sending of the AA response codes for transfer switches.	Weak	Low	3	Investigating
	4.3	5 of schedule 11.3	Incorrect CS file content. Some late CS files.	Weak	Low	3	Investigating
	4.8	10 of schedule 11.3	Incorrect sending of the AN code response sent. Some late CS files.	Weak	Low	3	Investigating
	4.10	11 of schedule 11.3	Incorrect CS file content.	Weak	Low	3	Identified
	4.11	12 of schedule 11.3	1 late RR file sent. 1 late AC file sent.	Strong	Low	1	Identified
	4.15	17 of schedule 11.3	10 switch withdrawals sent later than 2 months of the event date. 3 late AW responses sent.	Strong	Low	1	Identified
Distributed unmetered load	5.4	11(1) of schedule 15.3, 10.14 & 15.13	Incorrect submission in relation to one DUML databases.	Moderate	Low	2	Investigating
Electricity conveyed	6.1	10.13	Energy is not metered and quantified according to the code where meters are	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			bridged.				
Derivation of meter readings	6.6	5 of Schedule 15.2	Checks for phase failure not conducted. Customer photo reads treated as actuals. Meter condition information not managed.	Weak	Low	3	Investigating
Interrogate meters once	6.8	7(1) & (2) of schedule 15.2	No reporting in place to quantify ICPs not interrogated at least once during the period of supply.	Weak	Low	3	Investigating
NHH meters interrogated annually	6.9	(1) & (2) of schedule 15.2	For one ICP without an actual read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.	Moderate	Low	2	Investigating
90% read target	6.10	9 of schedule 15.2	For seven ICP without an actual read for four months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.	Moderate	Low	2	Identified
Correction of NHH meter readings	8.1	19(1) Schedule 15.2	Eleven ICPs with consumption while disconnected, have not had all their consumption while disconnected reported. Where a meter reading is modified by Bosco, including being recorded against a different meter or register or having its value changed, it should be recorded as an estimated reading. Only readings that exactly match the details in the source file should be recorded as actual validated readings.	Moderate	Low	2	Investigating
Event logs	9.6	17 of schedule 15.2	AMI event information not adequately obtained and monitored.	Weak	Low	3	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
HHR aggregates information	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	No action planned
Creation of submission information	12.2	15.4	Three ICPs had distributed generation, but no injection information was reported.	Moderate	Low	2	No action planned
Permanence of meter readings	12.8	4 of schedule 15.2 and clause 15.2 of part 15	Forward estimate remained for the final revisions for November 2015, December 2015 and January 2016. Not all meter readings were made permanent estimates by the 14 month revision.	Moderate	Low	2	Identified
RP to prepare information	12.9	2 Schedule 15.3	One ICP with a category 3 meter has submission type NHH.	Moderate	Low	2	Cleared
Forward estimate accuracy	12.12	6 of Schedule 15.3	FE accuracy threshold not met for some balancing areas.	Moderate	Low	2	Identified
HE targets	13.4	10 of Schedule 15.3	Historic estimate targets were not met for all revisions.	Moderate	Low	2	Identified
					Future Risk Rating	56	
					Indicative Next Audit Frequency	3 months	

Future risk rating	0	1-3	4-14	16-40	41-55	55+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

Table of Recommendations

Subject	Section	Clause	Recommendation	Remedial action
Relevant information	2.1	11.2 of part 11	Review status discrepancy process to ensure ICP status aligns between systems.	Investigating
Changes to unmetered load	3.7	9(1)(f) of schedule 11.1	Investigate if UML exists for ICP 1000010602BPA5D.	Investigating
Interrogate meters once	6.8	9(1) & (2) of schedule 15.2 and clause 15.2	Where reads are not received from AMI meters, Bosco should advise the MEP so they can investigate and update the AMI flag on the registry if necessary.	Investigating
		7(1) & (2) of schedule 15.2	Develop reporting to measure ICPs not reads during period of supply.	Investigating

Persons Involved in This Audit

Auditor:

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

Bosco personnel assisting in this audit were:

Name	Title	Company
Anurag Sharda	Energy Analyst	Mercury Energy
Barbara O'Connor	Filed Services Manager	Mercury Energy
Chris Posa	Compliance and Process Improvement Coordinator	Mercury Energy
Greg Bindon	System Development Engineer	Bosco
Jacqueline Paul	Risk Control Analyst	Mercury Energy
Leon Law	Service Delivery Specialist	Bosco
Navi	Billing	Bosco
Ranjesh Kumar	Pricing Operations and Energy Services Manager	Mercury Energy
Yael Philander	Switch Analyst	Mercury Energy

Contents

1. Administrative

1.1 Summary of Previous Audit

Bosco provided a copy of their previous audit reports conducted in August 2016 by TEG and Associates. The summary tables below record the status of the issues found during the last audit.

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Switching	2.1.3 now 4.2	4(1)(a) of schedule 11.3	1 ICP was switched later than 10 BDs.	Cleared
	2.1.5 now 4.4	6 of schedule 11.3	4 late RR files.	Cleared
	2.2.9 now 4.15	10(2) of schedule 11.3	28 NW file sent after more than 2 months.	Still existing
Changes to Registry Information	2.3.3 now 3.3	10 of schedule 11.1	Registry status not updated within 5 business days of the event.	Still existing
Interrogate NHH Meters Annually	3.1.10 now 6.9	8(1) & (2) of schedule 15.2	100% of meter reading on 12 monthly basis not achieved for 19 NSPs	Still existing
Meter Reading Correction	4.1.1 now 8.1	19(1) of Schedule 15.2	Meter reads corrected without changing a flag to "misread".	Still existing
Permanence of Meter Readings for Reconciliation	6.1.2 2.3.2 now 12.8	(2)(1)(a) of schedule 15.3 9(1)(e) of schedule 11.1	2 ICPs metering category3 submitted as NHH Incorrect type of reconciliation in the registry for 2 ICPs	Still existing
Historical Estimates	6.2.3 now 13.4	10 of schedule 15.3	HE targets not met for all NSPs.	Still existing

Table of Recommendations

Subject	Section	Clause	Recommendation for Improvement	Status
Changes to Registry Information	2.3.3	10(2) of schedule 11.1	Review process of updating ICP status in registry.	Still existing
New connections	2.3.5		Review process of using web interface to enter new connection information and nominate an MEP.	Cleared

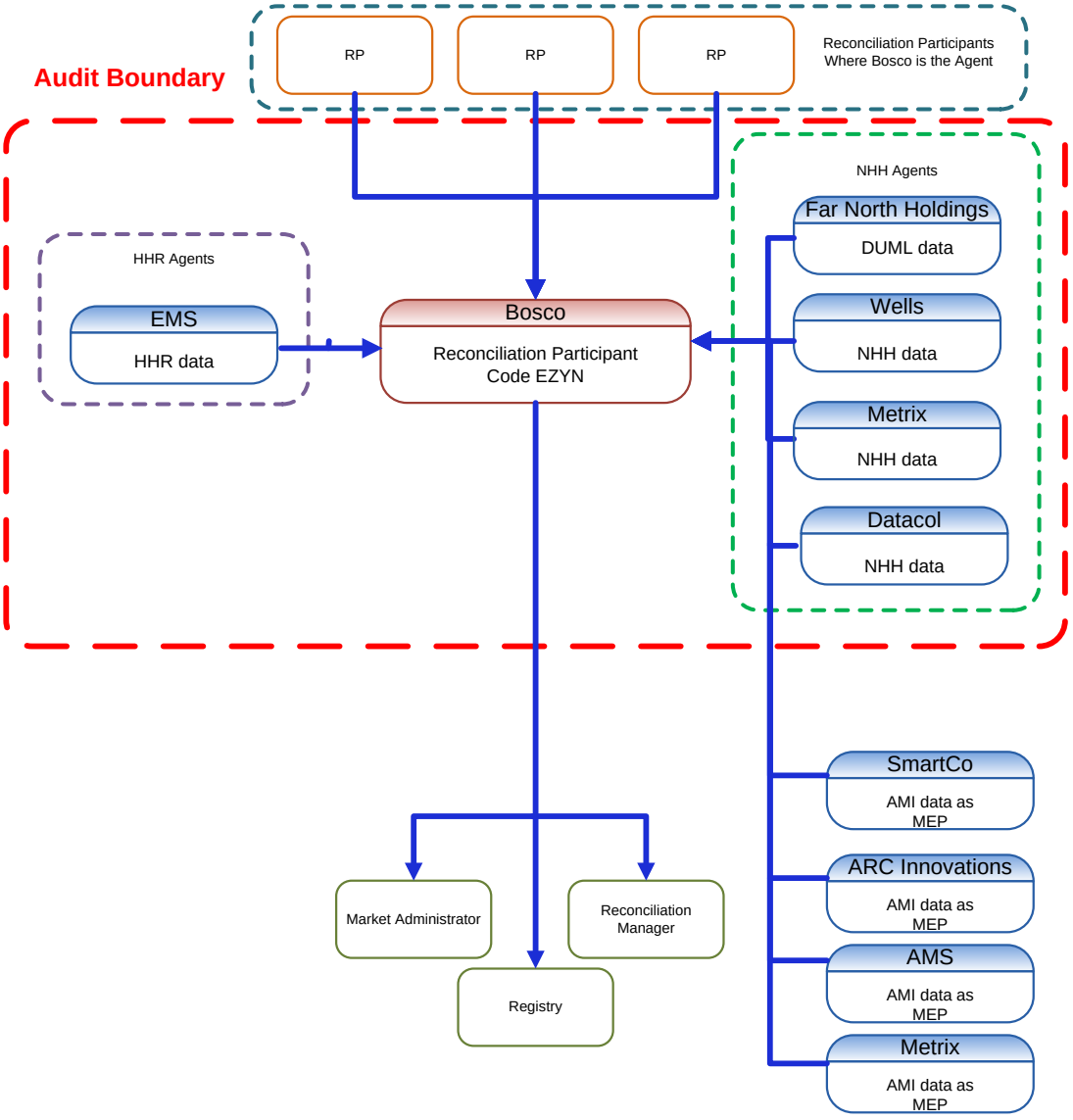
1.2 Scope of Audit

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

The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits V7.1

The audit was carried out at Mercury's premises in Auckland on June 26th and 27th, 2017.

The scope of the audit is shown in the diagram below, with the Bosco audit boundary shown for clarity. This report is for the EZNY participant code only.



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

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

Bosco receives distributed unmetered load (DUML) data from Far North Holdings, who are considered agents under clause 15.34. Veritek has audited this DUML and the audit report is submitted as part of this audit.

The remaining agents listed above were audited prior to June 1st,2017 and were therefore audited in accordance with the Guidelines for Reconciliation Participant Audits V6.2. Their audit reports are attached are submitted as part of this audit, and comments are included in this report in relation to any issues found.

Bosco also acts as an agent to other Reconciliation Participants, and this report will be provided to those parties as required.

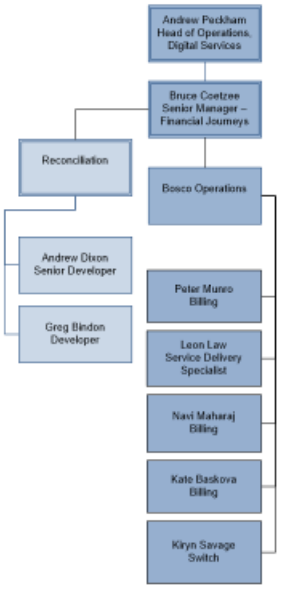
1.3 Exemptions From Obligations to Comply With Code (Section 11 of Electricity Industry Act 2010)

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.

Bosco has no exemptions in place.

1.4 Organisation Structure

Bosco provided a copy of their organisational structure.



1.5 Use of Agents (Clause 15.34 of Part 15)

Bosco uses a number of agents in relation to the functions covered by the scope of this audit. They are identified in Section 1.2.

The outcomes of all audits are commented on in the body of this report, and copies of the audits are attached as appendices.

1.6 Hardware and Software

Software

- SAP Business One
- Microsoft Office
- Ezy Business - manages the customer interface, reconciliation, meter reading
- Microsoft SQL Server 2005
- Citrix
- Mozilla Firefox/ Internet Explorer.

Hardware

- Various servers on OneNet
- HP desktop PCs.

1.7 Breaches or Breach Allegations

Bosco has no alleged breaches recorded during the audit period of August 2016 to May 2017.

1.8 ICP Data

Bosco provided a list file as at June 2017 by status:

ICP Status	Number of ICPs 2017
Active (2)	24,608
Inactive- new connection in progress (1,12)	5
Inactive – vacant (1,4)	149
Inactive- reconciled elsewhere (1,5)	0
Inactive – ready for decommissioning (1,6)	4
Inactive – de-energised remotely by AMI (1,7)	0
Inactive – de-energised at pole fuse (1,8)	28
Inactive – de-energised due to meter disconnected (1,9)	13
Inactive- de-energised at meter box fuse (1,10)	1
Decommissioned (3)	232

The active ICPs from the list file are summarised by meter category in the table below.

Category	2017
1	24,506
2	94
3	4
4	159
5	0
9	2
Blank	2

1.9 Authorisation Received

Bosco provided a letter of authorisation to Veritek, permitting the collection of data from other parties for matters directly related to the audit.

2. Operational Infrastructure

2.1 Relevant Information (Clause 10.6 of Part 10 & Clause 11.2 of Part 11 &15.2 of Part 15)

A participant must take all practicable steps to ensure that information that the participant is required to provide to any person under Part 15 is:
(a) complete and accurate
(b) not misleading or deceptive
(c) not likely to mislead or deceive.

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

Audit Observation

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

Audit Commentary

The list file was analysed and I found the following:

Issue	2017 Qty	Comments
Blank ANZSIC codes	5	This is captured when the customer signs up but is not checked as part of the registry discrepancy process. See section 3.6 "ANZSIC Codes" below.
ANZSIC "T999" not stated	0	None found
ANZSIC "T994" don't know	1	This is captured when the customer signs up but is not checked as part of the registry discrepancy process. See section 3.6 "ANZSIC Codes" below.
Active status misalignment between Ezy Business and the registry	2	Status misalignment found between Ezy Business and the registry for 2 ICPs - these were both switched in for the incorrect date. The correct date is recorded in Ezy Business but hasn't been corrected in the registry and SAP.
Status 1,8 -De-energised at pole fuse	28	Status misalignment found between Ezy Business and the registry for 2 ICPs - these are Edgecombe flooded sites. See section 3.9 "Management of "inactive" status".
Shared unmetered load incorrect	1	The registry validation process checks for whether SUML is present but the load calculation is not validated. See section 5.1 "Maintaining shared unmetered load."
ICPs with different UNM load to that recorded by the Distributor	0	None found
ICPs with Distributor unmetered load populated but retail unmetered load is blank and UML flag =N	1	ICP 1000010602BPA5D has UML recorded by the Distributor but Bosco has none. This needs investigation to determine which is correct. See section 3.7 "Changes to unmetered load."
Incorrect profile &	1	ICP 0171405633LC64B is a meter category 3 with the incorrect RPS profile and NHH

Issue	2017 Qty	Comments
submission flag		submission flag.

Bosco download a list file once a month and this is held in the ICP record as reference, but it does not update the status in Ezy Business. Status misalignments are managed as exceptions. The status misalignment report is generated every Monday and each discrepancy is validated before any status change is made to either correct Ezy Business or align the registry. I found four examples above where the status does not align. I recommend that the process to manage this is reviewed.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clauses 10.6,11.2 & 15.2	Review status discrepancy process to ensure ICP status aligns between systems.	We will review further and consider the recommendation	Investigating

The registry discrepancy process is not checking for all discrepancies. Specifically, it is not checking for:

- incorrect or missing ANZSIC codes
- unmetered load matches to the distributors
- unmetered load thresholds
- mismatches between meter category and submission flag and profile.

The volume of ICPs effected by these omissions is small and Bosco are not actively growing their customer base.

This is recorded as non-compliance.

Non-compliance	Description
Audit ref: 2.1 With: Clause 10.6,11.2 & 15.2 From/to: 1/6/16-31/5/17	Some registry discrepancies identified and not being checked. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate because the management of status needs review and not all discrepancies are being checked for. The volume ICPs effected by the missing validations is small, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action Status
We have implemented a new integrity report that is run daily to highlight ANZSIC code discrepancies. Regarding Active status misalignment: the date in EzyBusiness matches the date in the registry for the 2 ICPs in question. Regarding De-energised at pole fuse: EzyBusiness and Registry currently match, we run a weekly report and action as appropriate. The registry has been updated for ICP 0171405633LC64B to show submission as HHR from meter install date 12.04.2017. We are investigating the remaining noted discrepancy issue and will rectify.	30.09.2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

2.2 Provision of information (Clause 15.35)

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

Audit Observation

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

Audit Commentary

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

2.3 Data Transmission (Clause 20 of Schedule 15.2)

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.

For NHH ICPs I traced a sample of reads for five ICPs per provider from the source files to Bosco's systems.

HHR reconciliation submissions are completed by EMS. I traced a sample of 10 full days of volumes from the source files to the HHR volumes submission, and matched the total monthly volumes to the HHR aggregates files.

Audit Commentary

NHH read data is transmitted to Bosco via SFTP for Metrix, AMS and Wells and via FTP for Datacol. These methods ensure the security and integrity of the data. I saw evidence that the data transfer is via SFTP and that an email is sent to the Bosco team in the event that the download is not received or completed successfully.

NHH reads matched in all cases where they were imported. In some cases reads were not imported because consumption had already been estimated due to timing of read receipt. Import of these reads is raised as a recommendation in **section 6.10**.

Bosco supplies four HHR ICPs. EMS prepares the HHR reconciliation submissions and provides volume information for billing to Bosco. HHR data is received from EMS in a zipped, password protected email. HHR volume and aggregate submission information matched the source files.

Compliance is confirmed.

2.4 Audit Trails (Clause 21 of Schedule 15.2)

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

The audit trail must include details of information:
- provided to and received from the registry
- provided to and received from the reconciliation manager
- provided and received from other reconciliation participants and their agents.

The 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 Bosco and all agents include the activity identifier, date and time and an operator identifier.

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

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 Bosco's current terms and conditions.

Audit Commentary

Bosco's current terms and conditions with their customers includes consent to access for authorised parties for the duration of the contract. Compliance is confirmed.

2.6 Retailer responsibility for electricity conveyed - access to metering installations (Clause 10.7(2),(4),(5) and (6))

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.

Audit Observation

I reviewed Bosco's current terms and conditions, and discussed compliance with these clauses.

Audit Commentary

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

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

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

A registry list file was reviewed to confirm that all metered ICPs had an MEP recorded.

Audit Commentary

All metered ICPs had an MEP recorded. Compliance is confirmed.

2.8 Trader Contracts to Permit Assignment by the Authority (Clause 11.15B of Part 11)

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

Audit Observation

I reviewed Bosco's current terms and conditions.

Audit Commentary

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

2.9 Electrical connection of an ICP (Clause 10.32)

A reconciliation participant must only request electrical connection of a point of connection if they:
- accept responsibility for the ICP and the obligations under Parts 10 and 11, and, under Part 15; and
- have an arrangement with an MEP to provide metering at the point of connection under Part 15.

Audit Observation

The new connection process was examined in detail to evaluate the strength of controls. The list file and event detail report for the period from 1/12/16 to 31/5/17 were analysed to confirm process compliance and controls are functioning as expected.

Audit Commentary

Half Hour New Connection

There have been no HHR new connections during the audit period and none are expected. These connections are managed in the same way as NHH new connections which are discussed below.

Non-half Hour New Connections

Bosco will only accept new connections from their existing customer base i.e. an existing customer builds a new site and therefore the volume of these is small. There have been 38 new connections during the audit period where the Distributor has indicated EZNY was the nominated trader.

New connections on the Vector and Powerco networks are advised by the network. For the other networks, the application is received from the customer's agent such as the electrician. They then contact the network and request the creation of an ICP. Bosco claims the ICP at the "new connection in progress" status and the MEP is nominated at the same time. They then issue a service request to the field. Once the paperwork is received back to confirm the ICP is energised, the ICP is updated to active in Ezy Business which then writes to the registry which updates SAP. No examples were found of new connections with backdated creation dates. The list file and event detail reports were examined and found there were no backdated electrically connected ICPs. Compliance is confirmed.

2.10 Metering certification (Clause 10.33(2))

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

Audit Observation

The new connection process was examined in detail, and the list file as at 31/5/17, and event detail report for event detail report for the period from 1/12/16 to 31/5/17 was analysed.

Audit Commentary

All newly connected NHH ICPs have current metering in place as noted in **Section 3.2** below.

Analysis of the list file and event detail report found all ICPs were certified within five business days of energisation. Compliance is confirmed.

2.11 Arrangements for line function services (Clause 11.16)

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

Audit Observation

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

Audit Commentary

Bosco demonstrated the existence of either a UoSA or other trading arrangement for all networks.

2.12 Arrangements for metering equipment provision (Clause 10.36)

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

Audit Observation

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

Audit Commentary

Bosco 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 nomination of an MEP. Registry notifications are used to monitor MEP acceptance or rejection of any nominations. Compliance is confirmed.

3. Maintaining registry information

3.1 Obtaining ICP Identifiers (Clause 11.3 of Part 11)

The following participants must obtain an ICP identifier for any point of connection, as defined in clause 11.3(3) of part 11, to any local network or embedded network:

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.*

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 Bosco. The process is detailed in **Section 2.9** above. Compliance is confirmed.

3.2 Providing registry information (Clause 11.7(2))

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

Audit Observation

The new connection process was examined in detail. The list file was analysed in conjunction with the event detail report for the audit period to evaluate the updating of the registry in relation to new connections. This clause links directly to **Section 3.5** below. The findings for the timeliness of updates is detailed there.

Audit Commentary

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

3.3 Changes to registry information (Clause 10 Schedule 11.1)

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

Audit Observation

The process to manage status changes is examined. In this section, I have examined the event detail report for the period from December 2016 through to May 2017 to determine the overall performance for that period. I used the extreme case methodology examining a sample of ten (or less if that was all that was found) ICPs that were updated greater than 30 days (or less if the sample was too small) from the event date for each of the event type updates.

Audit Commentary

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to active-Reconnections	2017	292	249	43	5.6	85%
Change to de-energised vacant (excluding new connection in progress and ready for decommissioning statuses)	2017	265	216	49	10.9	82%
Change to de-energised ready for decommissioning	2017	16	9	7	37.7	56%
Change to de-energised new connection in progress	2017	46	46	0	0	100%

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change of MEP	2017	227	202	25	39.4*	89%

*The average notification days includes ICPs where the nomination has been accepted but the metering is yet to be loaded therefore the average notification days will be greater than the actual.

A service request is issued to the field for field work and once received back from the field the ICP is updated in Ezy Business, which then updates the registry, which then updates SAP. Prior to January 2017 all Bosco staff could update the power status in Ezy Business and this would trigger an update to the registry. This process has changed and only selected staff are able to change status to ensure better control of this process. I note that Ezy Business does not hold a record of status periods e.g. periods of inactive vs active but these time slices are held on the registry and in SAP.

Reconnections

The last audit found 24% of the updates to active were taking longer than five business days. This was investigated and found that the automated updating of the ICP status to active based on meter reading activity was causing inaccuracies. The controls in this area have improved since the last audit with a new report to identify any inactive ICPs with progression between meter reads, and these are each investigated and actioned accordingly.

There were eight ICPs found that were backdated greater than 30 days. These were analysed and found:

- Four related to backdated switches and these were updated to active as soon as the switch completed.
- ICPs 0000680171TU253 & 1000021351BPB1C related to an earlier trader updating the status in their time slice causing Bosco's status to the overwritten. These were identified as part of the registry discrepancy process and corrected but this caused the events to be backdated.
- Two were switched in for the incorrect start date and should have been withdrawn and switched in for the correct start date.

The backdating of these status updates is recorded as non-compliance below.

Inactive - New Connection in Progress

As detailed in **section 2.9**, Bosco claims all new ICP at the "new connection in progress" status and the MEP is nominated at the same time. All were updated within the required timeframe and before energisation had occurred.

Inactive - excluding “new connection in progress” and “ready for decommissioning”

All credit disconnections are updated for each full day of no power. The table shows 82% of all status updates are made within five business days. The remaining 18% are not updated within five business days which suggests that the paperwork is not always being returned in time. There were six ICPs found that were backdated greater than 30 days. These were analysed and found that the meter reader had indicated that these sites were inactive but these notes were not actioned in the first instance, and these could have been updated more quickly. The ICPs being updated late to the registry is recorded as non-compliance below.

Inactive- Ready for Decommissioning

ICPs are only updated to this status on advice from the network, therefore all of the late updates are due to the network advising Bosco late. If a customer requests a site to be decommissioned, Bosco advise the network via email that a decommission request should be expected and they direct the customer to contact the network to arrange this.

There were three ICPs that were backdated for greater than 30 days. These were analysed and found that they were all due to the late notifications from the network. The ICPs being updated late to the registry are recorded as non-compliance below.

Change of MEP

The process to manage MEP changes is discussed in detail in **Section 3.11** below. The event detail analysis identified 227 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. This found 27 (12%) of these were not sent within five days of the meter certification. A sample of ten of these were checked and found:

- Six ICPs are still awaiting the MEP to load the new metering hence it appears as a backdated nomination as the previous meter certification was being referenced in the analysis. These are compliant.
- Four where Bosco did not nominate the MEP within five business days of the meter being changed.

This process is manual with smart meter roll outs being advised by email from the MEP to staff. The sample checked of late updates were due to a step being missed to nominate the MEP.

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

Non-compliance	Description
Audit ref: 3.3 With: Clause 10 of schedule 11.1 From/to: 1/11/16-31/5/17	Registry not updated within 5 business days of the event. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as the level of compliance for updates to registry are relatively high. The sample checked found the overall level of compliance has improved since the last audit, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action Status
We have increased our focus in this area and should be meeting the 5 business days requirement going forward.	Completed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

3.4 Trader responsibility for an ICP (Clause 11.18)

A trader becomes responsible for an ICP when the trader is recorded in the registry as being responsible for the ICP. The responsible trader must ensure that an MEP is recorded in the Registry.

A trader ceases to be responsible for an ICP if another trader accepts responsibility in the registry; the ICP is decommissioned. If decommissioning an ICP, the trader must ensure that a final meter interrogation takes place, and that the MEP is notified.

Audit Observation

Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process was discussed and the list file, as at May 2017, was examined to identify that all active ICPs have an MEP recorded.

ICP Decommissioning

The process for the decommissioning of ICPs was examined. A selection of ten decommissioned ICPs was 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 MEP nomination is issued at the same time as the ICP is taken to the status "inactive - new connection in progress". The timeliness of these updates is recorded in **section 3.3 "Changes to registry"**. A check of the list file confirmed that all active ICPs have an MEP recorded. Compliance is confirmed.

ICP Decommissioning

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

In all cases, an attempt is made to read the meter at the time of removal and if this is not possible then the last actual meter reading is used. This last actual reading is normally the one taken at the time of de-energisation. The Mercury field services team manage this process on behalf of Bosco and they usually advise the MEP responsible that a site is to be decommissioned. A sample of ten ICPs was examined to confirm an attempt to read the meter was made at the time of removal. Compliance is confirmed.

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

The content of files provided to the registry contains the information set out in clause 9 of schedule 11.1.

Audit Observation

The new connection process was examined in detail. The list file was analysed in conjunction with the event detail report for the period from December 2016 through to May 2017 to evaluate the updating of the registry in relation to new connections. I checked all ICPs that were not updated within five business days of energisation. All ICPs had a matching active energisation, meter certification and active date with the exception of ICP 0000039931HR374 which is discussed below in **section 3.8**.

Audit Commentary

The table shows a good level of compliance. Only six ICPs were not updated within five business days.

Event	Year	Total ICPs	ICPs Notified Within 5 Days	ICPs Notified Greater Than 5 Days	Average Notification Days	Percentage Compliant
Change to active - New connections	2017	48	42	6	3.2	88%

New Connections

Half Hour

None have occurred during the audit period and these are not expected. Any requests received would be referred to Mercury.

Non-Half Hour

NHH new connections are managed in an excel WIP file where all jobs issued are tracked. The backdated new connections were checked and found these were all due to late paperwork from the field. There were all being chased. The late updating of the registry is recorded as non-compliance.

Non-compliance	Description
Audit ref: 3.5 With: Clause 9 of schedule 11.1 From/to: 10/1/17-9/5/17	Registry information not provided within 5 business days of commencement of supply for 6 new connections. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach Risk Rating: 1
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have recorded the controls as strong as the processes in place to manage new connections are robust and this is reflected in the short cycle time and the 88% compliance achievement. There were only six ICPs updated later than five days, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action Status
As per 3.3, We have increased our focus in this area and should be meeting the 5 business days requirement going forward.	Completed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

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

Audit Observation

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

Audit Commentary

This is captured when the customer signs up but as noted in **section 2.1**, this is not checked as part of the registry discrepancy process.

Analysis of the active ICPs in the list file noted the following:

- six ICPS with no ANZSIC code recorded
- ICP 1000012292BPAFB is recorded with ANZSIC code T994 “Don’t know”.

The lack of or incorrect recording ANZSIC codes is recorded as non-compliance.

Non-compliance	Description
Audit ref: 3.6 With: Clause 9(1)(k) of schedule 11.1 From/to: 1/8/16-31/5/17	6 active ICPs with no or incorrect ANZSIC codes assigned. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach Risk Rating: 3
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as weak as beyond sign up this is not being monitored as part of the registry discrepancy process. Only 6 ICPs with the no or the incorrect ANZSIC code and this has no direct impact on reconciliation accuracy, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action Status
The 6 ICPs have been corrected.	Completed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Report now in place, run daily and actioned as appropriate.	Completed	

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

Traders must populate the unmetered load details for all ICPs with unmetered load for which they are responsible.

Audit Observation

The process to manage unmetered load was examined. A list file with history for the period from December 2106 to May 2017 was examined for where:

- an unmetered load is identified by the Distributor but none is recorded by Bosco
- Bosco’s unmetered load figure doesn’t match with the Distributor’s figure (where it’s possible to calculate this if the Distributor is using the recommended format) and there is a variance of greater than 0.1kWh per day.

Audit Commentary

Examination of the Bosco list file found 14 active ICPs where Bosco has unmetered load recorded, excluding shared unmetered load. The load for these was checked against those where the distributor has used the recommended unmetered load format (2 out of the 15 ICPs). No discrepancies were found. The Distributors for the remaining 12 ICPs have no unmetered load details recorded. I have recorded non-compliance in **section 2.1** in relation to not validating the unmetered loads. If the Distributor changes their metered load details on the registry these are managed via the registry notification process.

The Distributor has recorded unmetered load against ICP 1000010602BPA5D but Bosco has none. I recommend that this site needs to be investigated to determine whether unmetered load exists or not, therefore I cannot determine compliance in relation to this.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clauses 9(1)(f) of schedule 11.1	Investigate if UML exists for ICP 1000010602BPA5D.	We are currently investigating.	Investigating

ICPs 0000003946TEC6B and 0000003947TE02E are the DUML ICPs for jetty lighting for Far North holdings. These have been detailed in **section 5.4**.

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

Before being given an "Active" status the retailer is required to ensure that the ICP has only one customer, embedded generator, or direct purchaser; and that the electricity consumed is quantified by a metering installation(s) or other approved method of calculation.

Audit Observation

The new connection process was examined in detail as discussed in **sections 2.9 & 3.5**. The list file as at May 2017 was examined to identify any ICPs still at the status "Inactive - new connection in progress" with an initial energisation date populated and none were found. The event detail report and list file report were checked for any variances between the initial energisation date and the active date. Only one was found.

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

Audit Commentary

Before being given an "Active" status, the retailer is required to ensure that the ICP has only one customer, embedded generator, or direct purchaser; and that the electricity consumed is quantified by a metering installation(s) or other Authority approved method of calculation. Ezy Business and SAP will not allow more than one party per ICP, nor will it allow an ICP to be set up without either a meter, or if it is unmetered, the daily kWh.

The accuracy of the active dates for the new connections was checked against the meter certification date and the initial energisation date across all identifiable new connections. The table below shows the results.

Active Date vs. Initial Energisation Date

	New Connections	Of those populated Active vs. IED Matched	Different
Distributor Initial Energisation Date	48	47	1

ICP0000039931HR374 has a different initial energisation date than the meter certification date which matched to Bosco's active date suggesting that the Distributors date is incorrect in this instance. The energisation paperwork was checked on site and confirmed that Bosco has the correct date.

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

	New Connections	Matched	Different
Meter Certification	48	48	0

All meter certification dates matched active dates. Compliance is confirmed.

Reconnections

The reconnection process is discussed in **section 3.3 "Changes to the registry"**. I found two ICPs where the reconnection dates do not align between the registry and Ezy Business:

- ICP 0000160133WAE82 was switched in 4/1/16 but the start date in Ezy Business is 4/1/17. This switch should have been withdrawn and switched in for the correct start date. The active dates do not align between Ezy Business and the registry for this ICP.
- ICP 1001288526LCD26 was requested by the customer for 3/1/17 via the online portal but this should have been 1/3/17. This site was inactive on the Ezy Business system until 1/3/17 but is recorded as active on the registry with Bosco from 3/1/17.

These are also discussed in **section 2.1**. The incorrect recording of status event dates is recorded as non-compliance.

Non-compliance	Description
Audit ref: 3.8 With: Clause 17 of schedule 11.1 From/to: 1/12/16-31/5/17	Incorrect active dates recorded for two reconnected ICPs. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as 2 ICPs were found where the status did not align between Ezy Buisness and the registry and therefore SAP. These inaccuracies have a minor impact on reconciliation accuracy hence the audit risk rating of low.

Actions taken to resolve the issue	Completion date	Remedial action Status
The dates in EzyBusiness matches the dates in the registry, we believe we are compliant here.		Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

The ICP status of "inactive" must be managed by the relevant trader and indicates that:
- electricity cannot flow at that ICP; or - submission information related to the ICP is not required by the reconciliation manager for the purpose of compiling reconciliation information.

Audit Observation

An event detail report for the period of November 2016 to May 2017 was reviewed, to identify all changes to inactive during the audit period.

The inactive status of "new connections in progress" was examined. The list file was examined to identify any ICPs that had been at the "Inactive - new connection in progress" for greater than 24 months and none were found.

The process to manage ICPs at the other inactive statuses was examined. A sample of five ICPs (or less if there were less than five at a status) at each inactive status using the typical characteristics methodology were checked. The findings in relation to the timeliness of updates to registry is recorded in **section 3.3 Changes to registry information**.

Audit Commentary

Inactive - New Connection in progress

As recorded in **section 1.8** there were five ICPs at this status in the list file. All were recorded correctly at this status. None have been at this status for greater than 24 months. Compliance is recorded in relation to the timeliness of updates to this status in **section 3.3.**

Inactive Status (excluding new connection in progress)

The process to manage changes to inactive is detailed in **section 3.3**. The status of "Inactive" is only used once a Bosco approved contractor has confirmed that the ICP has been disconnected. As noted in that section these status changes are sometimes being delayed when the meter readers notes are not actioned in a timely way.

ICPs 1000004094BPC52 and 1000004224BP4E7 were recorded as inactive on the registry but as active in Ezy Business and therefore the customer is being billed. These sites were affected by the recent Edgecombe floods. These. The status misalignment is recorded as non-compliance.

Non-compliance	Description
Audit ref: 3.8 With: Clause 17 of schedule 11.1 From/to: 1/12/16-31/5/17	Status misalignment between Ezy Business and the registry for two ICPs. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as moderate as 2 ICPs were found where the status did not align between Ezy Buisness and the registry and therefore SAP. These inaccuracies have a minor impact on reconciliation accuracy hence the audit risk rating of low.

Actions taken to resolve the issue	Completion date	Remedial action Status
Investigating, will correct if required.	31.08.2017	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

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

Audit Observation

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

Audit Commentary

Bosco takes all pending new connections to the "new connection in progress" status. Therefore, it is unlikely that any ICPs are at the "ready" status that have not been claimed. They confirmed they have not received any notifications from any Distributors in relation to this.

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

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

Audit Observation

The process to manage a change of MEP on an existing ICP was examined. The timeliness of these being updated on the registry is recorded in **Section 3.3** above.

Audit Commentary

The process to manage MEP changes is manual. Any rejections are managed from the registry notification and none were found in the event detail report examined. Smart meter roll outs are advised by email from the MEP to Bosco. Bosco uses two MEPs for their sites. The sample checked of the late updates found these were due to a step being missed in the nomination process. This is recorded as non-compliance in **section 3.3.**

The list file analysis confirmed that all active ICPs had an MEP recorded on the registry. Compliance is confirmed.

4. Performing customer and embedded network switching

I note that the switch breach reporting is in the process of being updated by Jade to align with the current code. Therefore, the switch breach report has been used to indicate non-compliance but due to inaccuracies it is not always possible to give a definitive number of the volume of late files.

4.1 Inform Registry of Switch Request for ICPs (Clause 2 of Schedule 11.3)

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

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

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

Audit Observation

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

Audit Commentary

Bosco are not actively seeking any new customers. Bosco's processes are compliant with the requirements of Section 36M of the Fair Trading Act 1986. NT files are sent as soon as all pre-conditions are met and the withdrawal process is used if the customer changes their mind. The ICPs checked and confirmed all were sent within two days of all conditions being met.

Compliance is confirmed.

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

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

The losing trader must then provide acknowledgement of the switch request by providing the proposed event date to the registry and a valid switch response code; or providing a request for withdrawal.

Audit Observation

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

The switch breach report was examined for the audit period and found no late AN files for the audit period.

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

Audit Commentary

The selection of the AN response code is determined by logic that has been inbuilt into Ezy Business. The AA and OC codes are the only two codes being used. Bosco are reviewing this logic to ensure that the most accurate code is sent. The sample checked found that two of the AA coded responses should have been sent as "AD". This is recorded as non-compliance below.

The event detail report for Bosco recorded 2,947 transfer switch losses. 2,072 (83%) of these had an event date of five days or less from the NT request date and none with an event date greater than ten business days.

Non-compliance	Description
Audit ref: 4.2 With: Clauses 3 & 4 of schedule 11.3 From/to: 1/09/16-31/5/17	Incorrect sending of the AA response codes for transfer switches Potential impact: None Actual impact: None Audit history: None Controls: Weak Breach Risk Rating: 3
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as weak as the current logic is set to select from only two of the available codes and needs review. I have recorded the audit risk rating as low as there is no direct effect on settlement outcomes in relation to this clause.

Actions taken to resolve the issue	Completion date	Remedial action Status
This is a system issue (Ezy Business is sending the AA automatically), we are working with our IT team to resolve.	First half of 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

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

Audit Observation

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

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

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

The switch breach history report for the audit period from September 16 to May 17 was reviewed to identify late CS files.

Audit Commentary

The CS file content was checked for accuracy and found:

- One example where the incorrect last read and last read date was sent e.g. the midnight read for the 3/4/17was sent as the estimated read for an event date of 5/4/17 with a last read date of 4/4/17.
- Two examples of midnight reads being sent as estimates. These had the correct last read date recorded.
- One example where the customer read was sent as an actual. This practice is recorded as non-compliance in **section 6.6.**
- The average daily consumption was found not to be calculating correctly for two of the five ICPs checked.

The incorrect CS file content is recorded as non-compliance below.

The CS files are notified in two ways. Either through the breach report from the registry which does not calculate correctly or via tasks that get assigned through Ezy Business tool. I noted that there is no consolidated view to easily see what work is in progress, or potentially about to breach.

The Bosco SHD report contained 73 breaches: One was recorded as breach code “CS”. This was checked and confirmed to be compliant. The remaining 72 were recorded as breach code “E2”. A sample of these files was checked using the diverse sample methodology and found eight were non-compliant and two compliant. This is recorded as non-compliance below.

Non-compliance	Description
Audit ref: 4.3 With: Clause 5 of schedule 11.3 From/to: 1/09/16-31/5/17	Incorrect CS file content. Some late CS files. Potential impact: Medium Actual impact: Low Audit history: None Controls: Weak Breach Risk Rating: 3
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as weak as there are no checks in place to monitor CS file accuracy and no central view to manage the sending of CS files effectively. I have recorded the audit risk rating as low as the volume of switches for Bosco is low relative to the market.

Actions taken to resolve the issue	Completion date	Remedial action Status
Investigating but we believe this to be a system issue which will need to be rectified with the assistance of IT. We have increased our focus to avoid late CS files, a robust process is in place.	First half of 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

If the validated meter reading or permanent estimate provided by the losing trader differs by less than 200 kWh from a value established by the gaining trader for a Transfer Switch event, the gaining trader uses the losing trader's validated meter reading or permanent estimate as the switch event meter reading.

Audit Observation

The process for the management of read requests was examined.

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

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

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

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

Audit Commentary

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

The sample checked for the read requests checked found these were processed as expected and were supported with two or more validated reads.

The switch breach history report showed there were no late read change requests identified for transfer switches, and no late acknowledgements were recorded.

Compliance is confirmed.

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

If the losing trader trades electricity from a non-half hour meter, with a switch event meter reading that is not from an AMI certified meter flagged Y on the registry: and
- the gaining trader will trade electricity from a meter with a half hour submission type in the registry;
- the gaining trader within 5 business days after receiving final information from the registry, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading.

Audit Observation

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

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

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

Audit Commentary

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

The analysis found that there were none rejected. Analysis of those accepted found further examples of the incorrect CS file content identified **in section 4.3**. Compliance is confirmed for correctly accepting the gaining trader's read requests.

4.6 Disputes – standard switch (Clause 7 Schedule 11.3)

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

Audit Observation

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

Audit Commentary

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

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

The code requires that "for each ICP, to which a switch relates, the gaining trader must advise the registry of the switch no later than two business days after the arrangement with the customer or embedded generator comes into effect."

Audit Observation

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

Audit Commentary

NT files are sent as soon as all pre-conditions are met and the withdrawal process is used if the customer changes their mind. The ICPs checked confirmed all were sent within two days of all conditions being met. Compliance is confirmed.

4.8 Losing trader provides information – switch move (Clause 10 Schedule 11.3)

After receiving notification of a switch request from the registry, the losing trader must respond to the switch request within five business days.

Audit Observation

An event detail report for the period from December 2016 to May 2017 was reviewed, to identify AN files issued by Bosco during the audit period. A sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied.

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

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

Audit Commentary

As recorded in **section 4.2**, the selection of the AN response code is determined by logic that has been inbuilt into Ezy Business. The AA and OC codes are the only two codes being used. Bosco are reviewing this logic to ensure that the most accurate code is being sent. The sample checked found that the three AA coded responses should have been sent as "AD". I also note that the PD code is not used and I would expect any inactive vacant sites to be sent with this code. None were found in the sample checked. This is recorded as non-compliance below.

The CS files are processed in the same way as transfer switch requests. They are either processed through the breach report from the registry or via tasks that get assigned through the Ezy Business tool. The NT requests are received via Ezy Business. I noted that there is no central place to easily view what work is in progress or potentially about to breach.

The Bosco switch breach report was checked and found no late AN files recorded. The report contained 418 CS file breaches: Three of these are recorded as "CS" file breaches. These were checked and found all were compliant. The remaining 415 ICPs were recorded as "E2" breaches. A sample of 11 of these were checked and found four were compliant and seven were valid breaches. The late CS files are recorded as non-compliance below.

Non-compliance	Description
Audit ref: 4.8 With: Clauses 10 of schedule 11.3 From/to: 1/06/16-31/5/17	Incorrect sending of the AN code response sent. Some late CS files. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach Risk Rating: 3
Audit Risk Rating	**Rationale for audit risk rating**
Low	The controls in this area are weak. I have recorded the audit risk rating as low as there is no direct effect on settlement outcomes in relation to this clause.

Actions taken to resolve the issue	Completion date	Remedial action Status
System enhancement required to rectify AN code issue, working with our IT team.	First half of 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We are reviewing our EZYN switching process.	Before end of 2017	

4.9 Losing trader determines a different switch date – switch move (Clause 10 Schedule 11.3)

If the losing trader determines a different date, the losing trader must also complete the switch by providing to the registry as described in sub-clause (1)(a):
- the event date proposed by the losing trader; and
- a valid switch response code; and
- final information as required under clause 1.

Audit Observation

The setting of event dates for move switches was examined. The event detail report for the audit period was examined. I compared the NT requested event date with the AN event date sent by Bosco for any switches dated earlier than the NT requested date, or for any event dates that were set greater than ten days from the NT receipt date.

Audit Commentary

The setting of the event date for switch moves is determined by logic in Ezy Business. Analysis found no ICPs where the event date was set earlier than the gaining trader requested date, or greater than ten days in advance of the NT request date. Compliance is confirmed.

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

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

- *provide the event date (clause 11(a)); and*
- *provide the switch event meter reading as at the event date for each meter or data storage device noted on the registry (clause 11(b)); and*

if switch event meter reading is not a validated meter reading, provide the date of the last reading of the meter or storage device (clause (11(c)).

Audit Observation

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

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

Audit Commentary

The CS file content was checked for accuracy and found:

- three out of five examples checked had the incorrect last read date

- three ICPs were sent with actual reads for the incorrect event date where they should have been estimated up to the event date e.g. actual reads for 6/2/17 sent for an event date of 20/2/17
- two with an incorrect average daily consumption figure e.g. for ICP 0000002549UN457 it looked to be calculated off one register only
- one example where the incorrect last read and last read date was sent e.g. the midnight read for the 29/3/17 was sent as the estimated read for an event date of 1/4/17 with a last read date of 31/3/17
- the average daily consumption was found not to be calculating correctly for two of the five ICPs checked.

The incorrect CS file content is recorded as non-compliance below.

Non-compliance	Description
Audit ref: 4.10 With: Clause 11 of schedule 11.3 From/to: 1/09/16-31/5/17	Incorrect CS file content. Potential impact: Medium Actual impact: Low Audit history: None Controls: Weak Breach Risk Rating: 3
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as weak as there are no checks in place to monitor CS file accuracy. I have recorded the audit risk rating as low as the volume of switches for Bosco is low relative to the market.

Actions taken to resolve the issue	Completion date	Remedial action Status
System enhancement required, scoping with IT.	First half of 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

As of October 9th, 2015, the gaining trader may provide an AMI switch event meter reading within <u>five</u> business days of the event date to the losing trader. In this instance the losing trader MUST use the gaining traders switch event meter reading. If no AMI switch event meter reading is available the gaining trader MUST use the losing traders switch event meter reading. If the validated meter reading or permanent estimate provided by the losing trader differs by less than 200 kWh from a value established by the gaining trader for a Move Switch event, the gaining trader uses the losing trader's validated meter reading or permanent estimate as the switch event meter reading.

Audit Observation

The process for the management of read requests was examined.

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

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

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

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

Audit Commentary

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

The sample checked for the read requests checked found these were processed as expected and were supported with two or more validated reads.

The switch breach history report found one late read change request and one late acknowledgement file for gaining trader read changes. The late RR file for ICP 1000013225BP423 and the late AC file for ICP 1000007580BP010 are recorded as non-compliance.

Non-compliance	Description
Audit ref: 4.11 With: Clauses 12 of schedule 11.3 From/to: 1/06/16-31/5/17	1 late RR file sent. 1 late AC file sent. Potential impact: Low Actual impact: None Audit history: None Controls: Strong Breach Risk Rating: 1
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as strong as overall the controls are robust and the one late RR and AC file were exceptions. I have recorded the audit risk rating as low as these are exceptions rather than evidence of a systemic issue.

Actions taken to resolve the issue	Completion date	Remedial action Status
We will raise this with the EA to get guidance on how to be compliant in situations where a RR is required but it is outside of the allowed timeframe. 1 AC file was sent late due to human error. We have strong controls in place but will review our processes and training.	Before end of 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

The gaining trader switch process applies where a trader and a customer or embedded generator enters into an arrangement in which the trader commences trading electricity with the customer or embedded generator to trade electricity through or assume responsibility for:
- a half hour metering installation that is not a category 1 or 2 metering installation, that has an ICP with a submission type half hour on the registry and an AMI flag of "N"; or
- a half hour metering installation that has a submission flag of half hour and an AMI flag of "N" and is traded by the losing trader as non-half hour; or
- a non-half hour metering installation at an ICP with the losing trader trades through a half hour metering installation with an AMI flag of "N".

Audit Observation

There have been no HHR switches conducted during the audit period and none are expected.

Audit Commentary

N/A

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

Within three business days after the losing trader is informed about the switch by the registry, the losing trader must:
15(a) - provide to the registry a valid switch response code as approved by the Authority; or
15(b) - provide a request for withdrawal of the switch in accordance with clause 17.

Audit Observation
There have been no HHR switch losses during the audit period. The process to manage these was examined.

Audit Commentary
These are managed in the same way as NHH switches. Compliance is confirmed.

4.14 Gaining trader to notify registry – gaining trader switch (Clause 16 Schedule 11.3)

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

Audit Observation
There have been no HHR switches conducted during the audit period and none are expected.

Audit Commentary
N/A

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

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.

Within five business days after receiving a notification from the registry of a switch, the trader receiving the withdrawal must notify the registry that the switch withdrawal request is accepted or rejected. A switch withdrawal request must not become effective until accepted by the trader who received the withdrawal.

On receipt of a rejection notification from the registry, a trader may re-submit the switch withdrawal request for an ICP. All switch withdrawal requests must be resolved within 10 business days after the date of the initial switch withdrawal request.

If the trader requests that a switch request be withdrawn, and the resolution of that switch withdrawal request results in the switch proceeding, within two business days after receipt of notification from the registry in accordance with clause 22(b), the losing trader must comply with clauses 3,5,10 and 11 (whichever is appropriate) and the gaining trader must comply with clause 16.

Audit Observation

The switch withdrawal process was examined. The content of a sample of two ICPs from the event detail report for each withdrawal code was checked using the typical sampling methodology. A sample of five switch rejections were checked using the typical sample methodology. The event detail report was also analysed to confirm timeliness of switch requests, as this is not currently being identified in the switch breach report. This identified 536 switch withdrawal requests sent. Ten (2%) of these were backdated greater than two months from the event date. The switch breach report was checked for any late switch withdrawal acknowledgements and found three recorded. These were all checked.

Audit Commentary

Any switch withdrawal requested or needing to be responded to is notified to the switching team via tasks or because of an issue identified with a switch in progress. All switch withdrawals are processed through Ezy Business and in addition to this an email is sent with the withdrawal details to the alternative trader.

The reason codes for the ten switches backdated greater than two months were:

- the wrong premise being switched in for four ICPs
- the customer advised Bosco later than two months from the switch event date that they wanted to cancel for four ICPs
- ICP 0001120230WMC15 was due to a metering issue
- ICP 0627550223LC18F was requested for the incorrect date.

The content of a selection of NW files was compared to SAP details and in all cases the withdrawal reason provided were accurate.

The three late AW files were examined and found all three were sent a day late. This is recorded as non-compliance.

Non-compliance	Description
Audit ref: 4.15 With: Clauses 17 & 18 of schedule 11.3 From/to: 1/09/16-31/5/17	10 switch withdrawals sent later than 2 months of the event date. 3 late AW responses sent. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach Risk Rating: 1
Audit Risk Rating	**Rationale for audit risk rating**
Low	I have rated the controls as strong as the process to manage switch withdrawals is well understood and those backdated were actioned as soon as possible. I have recorded the audit risk rating as low as these are actioned as soon as possible with the intent that submission is as accurate as possible.

Actions taken to resolve the issue	Completion date	Remedial action Status
Regarding late switch withdrawals: although technically non-compliant, these withdrawals needed to be done and we are open to guidance from the EA on whether there are compliant work-arounds for these circumstances. Late AW responses were sent late due to human error. We have strong controls in place but will review our processes and training.	Before end of 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

4.16 Metering information (Clause 21 Schedule 11.3)

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

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

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

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 is not a save protected retailer.

Winback processes were examined to determine whether they are compliant.

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

Audit Commentary

Bosco exclude any switch save protected retailer files from their pre-switch completion save programme, and all staff have been trained in relation to these requirements. The event detail report was checked and no "CX" coded switch withdrawal requests were sent prior to the switch completion date. Compliance is confirmed

5. Maintenance of unmetered load

5.1 Maintaining shared unmetered load (Clause 11.14)

The trader must adhere to the process for maintaining shared unmetered load.

Audit Observation

The registry list was reviewed and found Bosco has one ICP with shared unmetered load. I reviewed processes to identify shared unmetered load.

Audit Commentary

The registry validation process checks for whether SUML is present but the load calculation is not validated. I compared the load for the one ICP Bosco has and found the load matched. The lack of validation is recorded as non-compliance in **section 2.1.**

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

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 Bosco list file found 15 active ICPs have unmetered load recorded, excluding shared unmetered load. ICP 0000003947TE02E has a UML load that exceeds 6,000 kWh. The remaining ICPs all have loads less than 3,000 kWh per annum. The process to manage UML loads was examined.

Audit Commentary

As detailed in **section 2.1**, Bosco do not monitor unmetered load thresholds. They are not actively growing their customer base so it is unlikely that any will be added, but a check should be in place for this. This is recorded as non-compliance in **section 2.1**.

Bosco has one ICP with a load greater than 6,000 kWh. This is a DUML ICP and a streetlight audit has been undertaken for this. This is discussed in **section 5.4**. Compliance is confirmed.

5.3 Unmetered threshold exceeded (Clause 10.14 (5))

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

Audit Observation

Examination of the Bosco list file found 15 active ICPs have unmetered load recorded, excluding shared unmetered load. ICP 0000003947TE02E has a UML load that exceeds 6,000 kWh. The process to manage UML loads was examined.

Audit Commentary

As detailed in **section 2.1**, Bosco do not monitor unmetered load thresholds. They are not actively growing their customer base so it is unlikely that any will be added, but a check should be in place for this. This is recorded as non-compliance in **section 2.1.**

ICP 0000003947TE02E is a part of a distributed unmetered load and has an associated database. This is discussed in **section 5.4** below. Compliance is confirmed

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

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

Bosco has one distributed unmetered load database for Far North Holdings Limited. This has been audited during the audit period. The findings are detailed in the table below.

Audit Commentary

See below.

		Compliance Achieved (Yes/No)						
Database	Last audit 11(5) of schedule 15.3	Deriving submission information 11(1) of schedule 15.3	ICP identifier 11(2)(a) of schedule 15.3	Location of items of load 11(2)(b) of schedule 15.3	Description of load 11(2)(c) of schedule 15.3	Capacity of load 11(2)(d) of schedule 15.3	Tracking of load changes 11(3) of schedule 15.3	Audit trail 11(4) of schedule 15.3
Far North Holdings	24/5/17	No	Yes	Yes	Yes	No	No	Yes

.

Non-compliance	Description
Audit ref:5.4 With: Clauses 11(1) of schedule 15.3, 10.14 & 15.13 From/to: 01/6/16 – 31/5/17	Incorrect submission in relation to one DUML databases. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as Bosco has audited this database and corrections are in progress. The impact on settlement is minor as it is a small database, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action Status
Refer to DUML audit report. We are liaising with customer and other parties to make the appropriate corrections.	Before end of 2017	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

6. Gathering raw meter data

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

A trader must ensure that for each energised ICP that electricity is conveyed is in accordance with the code.

A participant is not required to quantify the electricity at a point of connection if the electricity is supplied by an embedded generator who has given the Reconciliation Manager a notification under clause 15.13 of Part 15.

Audit Observation

A registry list with history was examined to confirm whether Bosco had supplied any ICPs with generation during the audit period.

Audit Commentary

Bosco's system is not configured to allow billing of generation consumption. They do not accept customers with generation, so if generation is found for an existing customer, the customer is asked to switch to another retailer. Non-compliance is recorded in **section 12.2**.for not reporting generation.

Bosco provided a list of 11 ICPs where remote disconnection had occurred then the meter had been bridged to reconnect. This is recorded as non-compliance below. I reviewed the 11 bridged meters and noted that they had all been unbridged at a later date, and consumption during the bridged period was estimated. This is discussed further in **section 8.1**.

Non-compliance	Description
Audit ref:6.1 With: Clause 10.13 From/to: 07/12/16-21/06/17	Energy is not metered and quantified according to the code where meters are bridged. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	Bridging only occurs where a soft reconnection cannot be performed after hours and the customer urgently requires their energy supply for health and safety reasons.

Actions taken to resolve the issue	Completion date	Remedial action Status
Process now in place to reconcile estimated bridged usage.	Completed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

An asset owner must, for each GIP that connects to the grid, ensure that there is one or more certified metering installations for the GIP.

Audit Observation

A registry list with history was reviewed for the audit period to confirm that Bosco has not supplied any GIPs.

Audit Commentary

Examination of the list file found that Bosco has not supplied any GIPs.

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

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

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

Audit Observation

A registry list with history was reviewed for the audit period, to confirm that Bosco uses the HHR and GXP profiles.

Audit Commentary

Examination of the list file found that Bosco has used the RPS and HHR profiles, and control devices are not used for reconciliation purposes. Compliance is confirmed.

6.4 Reporting of defective metering installations (Clause 10.43(2) and (3))

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. Seven examples of defective meters were identified and 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 read provider.

Upon identifying a possible defective meter, Bosco raises a field services job to investigate or correct the problem. I reviewed seven examples of potential defective meters, including stopped or faulty and bridged meters. In all cases a field services job was raised and the MEP advised. Compliance is confirmed.

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

A reconciliation participant must obtain raw meter data used to determine volume information from the services access interface. Except when only the Metering Equipment Provider can electronically interrogate a metering installation for which it is responsible and they have an arrangement with the reconciliation participant which prevents them from interrogating the metering installation themselves.

Audit Observation

The data collection process was examined. A sample of five meter reads per provider were checked using the typical case sample methodology.

Audit Commentary

All actual reads are sourced from the services interface, either by viewing the interface or obtaining a download.

A sample of five meter reads per meter reading provider were traced from the source file to Bosco's system. Reads matched in all cases where they were imported. In some cases reads were not imported because consumption had already been estimated due to timing of read receipt. Import of these reads is raised as a recommendation in section **6.10**. Compliance is confirmed.

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

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

All validated meter readings must be derived from meter readings.

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

During the manual interrogation of each NHH metering installation the reconciliation participant must:
(a) obtain the meter register
(b) ensure seals are present and intact
(c) check for phase failure (if supported by the meter)
(d) check for signs of tampering and damage
(e) check for electrically unsafe situations
if the relevant parts of the metering installation are visible and it is safe to do so.

Audit Observation

The data collection process was examined. A sample of five meter reads each for Wells and Datacol were checked using the typical case sample methodology.

Processes for customer reads were reviewed.

Audit Commentary

Readings obtained from manual interrogation of NHH meter readings are provided by Wells and Datacol. The requirement to check the meter number and condition of the meter at the time of interrogation and report findings to Bosco was examined as part of their agent audits. No issues were identified for Wells. Datacol is not conducting checks for phase failure, and this is recorded as non-compliance below.

Bosco receives reports on both meter condition and situations where there is a different meter number present, indicating a possible meter change. While meter number differences are reviewed, meter condition issues are not. This is recorded as non-compliance below

Readings are appropriately labelled. I checked the content of a sample of five reading files for each agent to confirm the data in Bosco's database matched the data in the files.

Bosco accepts customer or self readings, particularly where access is an issue. Normally, Bosco arranges for a meter reader to complete a check read every nine months to one year. This reading is used to validate the customer readings so that they can be recorded as validated. Where the meter reader could not gain access to perform the check read, Bosco would accept a customer photo read as an alternative. Because the required condition checks are unable to be performed using a photo read, this does not meet the requirements of clause 5 of schedule 15.2. Non-compliance is recorded below. Bosco has recently become aware that this practice is not compliant and intends to change their process.

Non-compliance	Description
Audit ref: 6.6 With: Clause 5 of Schedule 15.2 From/to: 1/9/16-31/5/17	Checks for phase failure not conducted and recorded for meters read by Datacol. Customer photo reads are treated as validated actual reads. Meter condition information obtained when meters are manually interrogated is not reviewed and acted upon. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach Risk Rating: 3
Audit Risk Rating	**Rationale for audit risk rating**
Low	Phase failure is often not indicated on non-AMI meters. It is expected there would be a relatively small number of meters read by Datacol where phase failure is present or visible. Customer photo reads only occur where it is not possible for the meter reader to gain access to perform a check reading. A relatively small number of meters are likely to be affected. According to a registry list provided as at 31/05/17, approximately 19% of Bosco's customers do not have AMI enabled meters, and a slightly higher proportion will be read manually. Of these, it is expected only a small proportion would have meter condition issues present.

Actions taken to resolve the issue	Completion date	Remedial action Status
Investigating phase failure issue and taking steps to ensure we are compliant going forward. Following clarification from the EA we are no longer entering customer photo reads as actual readings. Investigating meter condition issue and taking steps to ensure we are compliant going forward.	Before end of 2017	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

6.7 NHH meter reading application (Clause 6 Schedule 15.2)

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

AMI midnight readings are imported, which are applied as at 2400hrs by Bosco. Application of reads was reviewed as part of the historic estimate checks, and is discussed in section **12.11**.

I traced a sample of reads for five ICPs per provider from the source files to Bosco's systems. AMS, Wells and Datacol do not provide a read time in their read files. Metrix provided the read time and I confirmed the reads imported are as at midnight.

Compliance is confirmed.

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

A validated meter reading must be 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, 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".

Audit Observation

The process to manage missed reads was examined.

Audit Commentary

Weekly, Bosco runs a report to identify ICPs not read for seven months or more. Staff attempt to obtain an actual read for these ICPs, either from AMI files if available, by conducting a special meter reading, or contacting the customer to arrange access to read the meter. ICPs with a period of supply of less than seven months are unlikely to meet the best endeavours requirement.

Bosco has processes in place to move non communicating AMI meters to manual meter reading rounds. I stepped through the process to identify non communicating meters, including viewing reports used in the process.

If AMI reads are not received for five consecutive days, the ICP is moved to a manual meter reading route. When three consecutive AMI reads are received, the ICP is removed from the manual meter reading route.

I reviewed a sample of ten ICPs with AMI meters where reads had not been attained for at least four months.

- five of the ICPs had an MEP who does not provide AMI data to Bosco and are read manually
- one ICP has had intermittent communication problems, and is now receiving AMI reads
- two ICPs' meters were unable to be read as power was off at the main supply
- two ICPs had not received any AMI reads to date, both were on manual reading runs and in both cases jobs have been raised with the MEP.

The meters all still showed AMI flag = yes on the Registry.

When ICPs are removed from the AMI routes, Bosco does not always advise the MEP. It is recommended that Bosco advise the MEP whenever communication issues are present, so that the MEP can investigate and update the AMI flag on the registry if necessary.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clause 9(1) & (2) of schedule 15.2 and clause 15.2	Where reads are not received from AMI meters, Bosco should advise the MEP so they can investigate and update the AMI flag on the registry if necessary.	We will review further and consider the recommendation	Investigating

There is no reporting in place to quantify how many ICPs are not read during the period of supply. I was unable to efficiently identify ICPs not read during the period of supply, so compliance with the best endeavours requirement was unable to be assessed. I repeat last year's recommendation that reporting should be developed, and record non-compliance below.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clause 7(1) & (2) of schedule 15.2	Develop reporting to measure ICPs not reads during period of supply.	We will review further and consider the recommendation	Investigating

Non-compliance	Description
Audit ref: 6.8 With: Clause 7(1) & (2) of schedule 15.2 From/to: entire audit period	No reporting in place to quantify ICPs not interrogated at least once during the period of supply. Potential impact: Low Actual impact: Unknown Audit history: None Controls: Weak Breach Risk Rating:3
Audit Risk Rating	Rationale for audit risk rating
Low	It is expected a relatively small number of ICPs will not have their meters read during the period of supply.

Actions taken to resolve the issue	Completion date	Remedial action Status
We have strong processes in place as indicated by only one ICP being affected, however we will investigate to see what occurred and review and improve our processes if required.	Before end of 2017	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
Refer above comments		

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

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

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

Audit Observation

The meter reading process was examined. Monthly reports for the months of November 2016 to May 2017 were provided.

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

Audit Commentary

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > 12 months	NSPs <100% read	ICPs unread for 12 months	Overall percentage read
November 2016	66	3	3	99.99%
December 2016	66	0	0	100.00%
January 2017	65	1	1	100.00%
February 2017	65	2	2	99.99%
March 2017	65	0	0	100.00%
April 2017	65	3	4	99.98%
May 2017	66	1	1	100.00%

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

Bosco provided reports showing ICPs not read in the previous 12 months for November 2016 - May 2017. I reviewed a sample of 11 instances where the meter had not been read in the previous 12 months identified from these reports. In 10 of these cases, exceptional circumstances existed and the best endeavours requirement was met. In one case, the meter was scheduled to be read manually, but no reads were provided until the ICP had been supplied for 13 months. No evidence of follow up with the customer could be found, and the reason no reads were obtained could not be confirmed. This is recorded as non-compliance with the best endeavours requirement below.

Non-compliance	Description
Audit ref: 6.9 With: Clause 8(1) & (2) of schedule 15.2 From/to: April 2017	For one ICP without an actual read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating:2
Audit Risk Rating	**Rationale for audit risk rating**
Low	Only one case was identified where exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met. An actual read was obtained after 13 months.

Actions taken to resolve the issue	Completion date	Remedial action Status
We have strong processes in place as indicated by only one ICP being affected, however we will investigate to see what occurred and review and improve our processes if required.	Before end of 2017	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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

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 ICPs.

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

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

Audit Observation

The meter reading process was examined. Monthly reports for the months of November 2016 to May 2017 were provided.

Review of ten ICPs not read in the previous four months to determine whether exceptional circumstances exist, and if Bosco had used their best endeavours to obtain readings.

Audit Commentary

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > 4 months	NSPs <90% read	Total ICPs unread for 4 months	Overall percentage read
November 2016	66	0	53	99.80%
December 2016	66	0	58	99.78%
January 2017	65	1	67	99.75%
February 2017	65	0	68	99.74%
March 2017	65	1	66	99.74%
April 2017	65	1	63	99.75%
May 2017	66	0	42	99.83%

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

Bosco provided reports showing ICPs not read in the previous four months for November 2016 - May 2017. I reviewed a sample of 11 ICPs where the meter had not been read in the previous four months. Exceptional circumstances existed and the best endeavours requirement was met four cases; but not the other seven. This is recorded as non-compliance below.

Non-compliance	Description
Audit ref:6.10 With: Clause 9(1) & (2) of schedule 15.2 From/to: April 2017	For seven ICP without an actual read for four months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating:2
Audit Risk Rating	**Rationale for audit risk rating**
Low	In most cases the requirement to read 90% of ICPs connected to an ICP every four months was met. Seven cases were identified where exceptional circumstances did not exist, and the best endeavours requirement was not met.

Actions taken to resolve the issue	Completion date	Remedial action Status
We have a 99% read rate overall. We are adjusting our reporting to ensure we are meeting the four month requirement going forward.	Before end of 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

For two of the ICPs unread for four months, meter reader check readings were performed, but not posted in Ezy Business because the ICP had already been billed on an estimate reading. Unposted reads are not used by the billing or reconciliation processes. Ezy Business will not allow reads to be imported with a read date prior to the last date the ICP was billed to, and if a read is posted on a later date, the customer will receive a short bill. The only alternative is to reverse the previous invoice, import the read, and then rebill the customer to the read date. Unfortunately, this process is labour intensive and can inconvenience or confuse the customer.

Currently Bosco will reverse and rebill in situations where the read is materially different to the estimate billed. I recommend Bosco consider whether these actual reads should also be posted in situations where a read has not be obtained for an extended period, to help Bosco meet the historic estimate and meter read frequency requirements.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clause 9(1) & (2) of schedule 15.2 and clause 15.2	If an actual read is received for a date which is not the customer's scheduled read date, and the customer has already been billed on an estimated reading, the actual read will not be posted and will not be used for billing or reconciliation. If the read is marked as posted, another invoice will be generated. I recommend that Bosco considers reversing the previous invoice and using these reads for billing where the ICP risks breaching the read attainment requirements.	We will review further and consider the recommendation	Investigating

6.11 NHH meter interrogation log (Clause 10 Schedule 15.2)

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 AMS, Metrix, Wells and Datacol. The data collection processes were reviewed as part of their MEP and agent audits.

Audit Commentary

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

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

Raw meter data from all electronically interrogated metering installations must be obtained via the services access interface. This may be carried out by a portable device or remotely.

Audit Observation

HHR data is collected by EMS. I traced a sample of 10 full days of volumes from the source files to the HHR volumes submission, and matched the total monthly volumes to the HHR aggregates files.

Audit Commentary

This clause requires that data from all half hour metering must be obtained by electronic interrogation of meters or data loggers. These processes were reviewed as part of EMS' agent audit.

HHR volume and aggregate submission information matched the source files.

Compliance is confirmed.

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

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;*
- *events log.*

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

A walkthrough of the HHR data collection function was performed to confirm compliance.

EMS is responsible for meeting the meter interrogation log requirements, and this is reviewed as part of their agent audit.

Audit Commentary

Data interrogation requirements were reviewed in EMS' agent audit. The following information is collected during each automated interrogation of HHR metering:

- the unique identifier of the data storage device (device ID)
- the time from the data storage device at the commencement of download
- the half-hour metering information for each trading period
- events log, which may be limited to event information accumulated since the last interrogation.

Compliance is confirmed.

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

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
A walkthrough of the HHR data collection function was performed to confirm compliance.

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

Audit Commentary
EMS demonstrated compliance with this clause. Their interrogation log includes:

- date of interrogation
- time of commencement of interrogation
- operator identification (this records which machine made the interrogation request and whether it was a manual or scheduled task)
- unique identifier of the data storage device
- time errors outside the range specified in table 1 of clause 2
- method of interrogation (there is only one method used by EMS, but manual data from agents will be loaded as “imported” or “portable reader”)
- identifier of the reading device used for interrogation (manually read files do not include which device was used to do the download).

Compliance is confirmed.

7. Storing raw meter data

7.1 Trading period duration (Clause 13 Schedule 15.2)

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

Audit Observation
Five monthly HHR volume files were checked to confirm trading period duration. Trading period duration for MEPs was reviewed as part of their MEP audits.

Audit Commentary

Review of read files for each HHR ICP confirmed that trading period duration is 30 minutes. Trading period duration is the responsibility of MEPs, and is reviewed as part of their MEP audits.

Compliance is confirmed.

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

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 2013 was reviewed to ensure that it is retained.

Audit Commentary

When this data reaches Bosco's systems the level of security is also robust, and unauthorised personnel cannot access data. The billing team have access to change meter readings.

I reviewed NHH raw meter data from as early as 2011 recorded in Ezy Business, and raw HHR data files from as early as 2013, confirming that meter reading data is retained for at least 48 months.

Compliance with clause 18.3 of schedule 15.2 was examined, which requires that ".....meter readings cannot be modified without an audit trail being created." Readings cannot be modified without an audit trail being created. I viewed these audit trails, and they are discussed in further detail in **section 2.4**.

No paper based reads are received.

Compliance is confirmed.

7.3 Non metering information collected / archived (Clause 21(5) Schedule 15.2)

All relevant non-metering information, such as external control equipment operation logs, used in the determination of profile data must be collected, and archived in accordance with clause 18.

Audit Observation

Processes to record non-metering information were discussed.

Audit Commentary

Bosco does not deal with any non-metering information.

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

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

Audit Observation

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

Review of clock synchronisation event information where available.

Audit Commentary

Clock synchronisation processes for MEPs were reviewed as part of their MEP audits. Bosco has not received any information on clock synchronisation events during the audit period.

Compliance is confirmed.

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)

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

- confirmation of the original meter reading by carrying out another meter reading

- replacement of the original meter reading by another meter reading (even if the replacement meter reading may be at a different date)

- 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. A sample of corrections were reviewed.

Audit Commentary

Where errors are detected during the validation of NHH meter readings, a check reading is performed or if the meter is AMI enabled, other surrounding readings may be checked.

Estimated consumption during a period where a meter is bridged is manually recorded against the meter, along with the dates the meter was bridged. The system reconciliation process uses Seasonal Adjusted Shape Values (SASV) shapes to apportion the estimated consumption into the correct reconciliation period for submission to the reconciliation manager. I reviewed 11 examples of bridged meters and found that consumption during the bridged period had been estimated at a reasonable level. In two cases, there were small errors in the dates bridged and consumption estimated. These were corrected during the audit, and revised consumption will be submitted for wash ups. I verified the reconciliation consumption calculation by reviewing the calculations for one bridged ICP.

Consumption that has occurred while an ICP is inactive will only be reported if the status is corrected back to active. I reviewed 11 ICPs with consumption while disconnected, all had less than 20 kWh of disconnected consumption and in several cases, consumption was so low it appeared to be due to the meter creeping.

The historic estimate process apportions consumption between reads to the days that the ICP has been active during the read period. All of the ICPs remained inactive for at least part of the period where the consumption occurred. For example, ICP 1000004819BP64E became active and then inactive between the reads taken on 28/04/17 and 24/05/17. The SASV process apportioned part of the consumption between 29/04/2017 and 24/05/2017 to the days the ICP was active, 03/05/2017-18/05/2017. The consumption apportioned to the inactive days 29/04/17-02/05/17 and 19/05/17-24/05/17 will not be reported. This is recorded as non-compliance below.

Date	Status	Read
22/09/1999	Active	
06/04/2017		3571
26/04/2017	Inactive	
28/04/2017		3571
03/05/2017	Active	
19/05/2017	Inactive	
24/05/2017		3605

When a meter reading is found to be transposed, Bosco swaps the readings between registers and leaves the readings as actual. This is recorded as non-compliance below.

Non-compliance	Description
Audit ref: 8.1 With: 19(1) Schedule 15.2 From/to: 1/9/16-31/5/17	Eleven ICPs with consumption while disconnected, have not had all their consumption while disconnected reported. Where a meter reading is modified by Bosco, including being recorded against a different meter or register or having its value changed, it should be recorded as an estimated reading. Only readings that exactly match the details in the source file should be recorded as actual validated readings. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach Risk Rating:2
Audit Risk Rating	Rationale for audit risk rating
Low	The total consumption unreported is 95 kWh. In situations where meters are transposed, it is likely that the meter readings are correct. In other cases where reads are changed but remain actual, small volumes are usually involved.

Actions taken to resolve the issue	Completion date	Remedial action Status
We are reviewing our processes for consumption while disconnected and modifying meter readings respectively.	30.09.2017	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
Refer to above comments.		

No corrections for incorrect multipliers were identified during the audit period.

Four examples of corrections for faulty meters were provided and reviewed. Meters were replaced on estimate reads as appropriate. Compliance is confirmed.

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

If errors are detected during validation of half hour metering information the correction must be as follows:
- if a check meter or data storage device is installed at the metering installation, data from this source may be substituted
- in the absence of any check meter or data storage device, data may be substituted from another period if the total of all substituted intervals matches the total consumption recorded on the meter, if available, and the pattern of consumption is considered materially similar to the period in error.

Audit Observation

Processes for correction of HHR meter readings were reviewed.

Audit Commentary

Corrections of HHR data are conducted by EMS, as an agent to Bosco. No corrections to HHR data were made during the audit period.

The EMS audit report was reviewed and compliance is confirmed.

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

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

Audit Observation

Error and loss compensation arrangements were discussed.

Audit Commentary

Bosco does not deal with any loss and compensation arrangements. If a compensation arrangement was in place, this would be identified through the load check process employed at the time of certification or recertification. Compliance is confirmed.

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

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**. Raw meter data is not overwritten as part of the correction process. Audit trails are discussed in **section 2.4**.

Raw meter data retention for MEPs and agents was reviewed as part of their audits.

Audit Commentary

Corrections of HHR data are conducted by EMS, as an agent to Bosco. No corrections to HHR data were made during the audit period.

I reviewed the audit trail information for NHH data corrections, including bridged meters, and noted that they were compliant with the requirements of this clause. The technique used for correction is pre-set within the system for bridged meters.

Compliance is confirmed.

9. Estimating and validating volume information

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

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

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

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

Audit Commentary

Readings are clearly identified as required by this clause. Compliance is confirmed.

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

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. Compliance is confirmed.

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

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

Audit Observation

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

For NHH ICPs I traced a sample of reads for five ICPs per provider from the source files to Bosco's systems.

HHR reconciliation submissions are completed by EMS. I traced a sample of 10 full days of volumes from the source files to the HHR volumes submission, and matched the total monthly volumes to the HHR aggregates files.

Audit Commentary

The MEPs retain the raw, unrounded data.

NHH data

Manual meter readings and AMI readings from Metrix do not record decimal places, and are not rounded or truncated on import into SAP. AMI data provided by AMS is truncated on import, readings are recorded to zero decimal places.

HHR data

Volumes reported in the HHR volumes submissions match exactly to the source files. Volumes submitted in the aggregates files are rounded to zero decimal places.

9.4 Half hour estimates (Clause 15 Schedule 15.2)

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

Processes for estimation of HHR meter readings was discussed.

Audit Commentary

If the need arises, metering data is estimated by EMS who provides submission information to the reconciliation manager. No examples of estimates were available for review. EMS' agent audit report was sighted and I confirm compliance.

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

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

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

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

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

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

Audit Observation

I reviewed and observed the NHH data validation process, including checking a sample of data validations. I viewed validation parameters set in Ezy Business.

Audit Commentary

Meter readings are imported into the system automatically. The import and validation checks for all NHH readings were viewed in the system.

Import and initial validation checks include:

- correct file format and field types
- meter ID and register match
- whether the read is for a scrapped meter
- reading values are valid
- read dates are valid and as expected
- read type codes are valid
- the read is the same as, or higher than, the previous read
- high daily average consumption more than 20% higher than the previous period.

For the first five checks, reads will not import and an exception will be generated. For the last two consumption related checks, the reads will import but an exception will be generated.

Pre billing validation checks include

- total consumption for ICP = sum of consumption for the meters, errors can indicate data corruption
- switch readings inconsistent with later actual reads
- negative consumption
- high usage for meter configuration, brand and ICP type
- missing read on scheduled read date - missing reads will automatically be estimated if a read is not received by the billing deadline
- test billing run to ensure all information needed is present.

Exceptions are reported wherever these issues are found.

Any exceptions found are reviewed by the Bosco billing team. I walked through this process including reviewing the exception reports, and action taken to resolve the exceptions.

After passing validation, reads are flagged as posted in the system, and are available to be used by the billing and reconciliation processes.

The checks completed are sufficient to identify accuracy issues with readings provided. Compliance is confirmed.

Meter event and meter condition information may indicate further issues, and is not reviewed. This is raised as non-compliance in **sections 6.6** and **9.6**.

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

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

Each validity check of a meter reading obtained by electronic interrogation or an estimated reading must include:
17(4)(a) - checks for missing data
17(4)(b) - checks for invalid dates and times
17(4)(c) - checks of unexpected 0 values
17(4)(d) - comparison with expected or previous flow patterns
17(4)(e) - comparisons of meter readings with data on any data storage device registers that are available
17(4)(f) - a review of meter and data storage device event list. Any event that could have affected the integrity of metering data must be investigated.

Audit Observation
Review of meter event logs and validation checks. Walk through of the validation process.

Audit Commentary

HHR
Bosco supplies four HHR ICPs. EMS produces reconciliation submissions and provides information to Bosco to be used for billing.

Interrogation occurs regularly during the month, so there is little risk that data will be overwritten. Most modern devices have a data storage capacity of 100 or more days, which provides an additional level of security in relation to this clause.

EMS completes data validation, including

- checks for missing data (through reviewing the "gaps and overlaps" report)
- checks for invalid dates and times (MV90 will reject manually read files if there is an issue)
- checks of unexpected zero values (these settings are at channel level and some are set to allow for a certain number of zeros depending on the customer type)
- comparison with expected or previous flow patterns (these can be viewed graphically)
- checks that the maximum demand hasn't exceeded the maximum allowable based on the primary rating of the CTs
- low is manually set and the default is 0.1
- comparisons with the readings reported by meter and data storage device registers where these are available
- a review of meter and data storage device event list.

Any event that could have affected the integrity of metering is investigated.

In situations where data fails validation and a logical reason cannot be found the issue is referred to Bosco for further investigation. No examples of validation issues referred to Bosco were identified during the audit.

Bosco also completes manual validation in Excel for the information they receive, including:

- a reasonableness check between demand and consumption
- comparisons to previous months' consumption
- checks for unexpected zero values
- checks for missing data.

In situations where data fails validation and a logical reason cannot be found the issue is referred to the account manager for further investigation. A final option is for a site visit if the anomaly cannot be reasonably explained.

AMI

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

Bosco receives AMI data from Metrix and AMS. As discussed in **section 9.5**, all NHH reads are checked for missing data, invalid dates and times, unexpected zero values, and comparison against consumption history.

The MEPs must check the event log for evidence of malfunctioning or tampering and they must pass relevant event log entries to the reconciliation participant for the metering installation. The reconciliation participant must conduct a review of meter and data storage device event log. Any event that could have affected the integrity of metering data must be investigated. Event information provided by the MEPs is not investigated or reviewed in accordance with this clause. I recommend the examination of at least the following events:

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

Meter condition information collected during manual meter readings is also not reviewed, this is recorded as non-compliance in **section 6.6**.

Metering events emailed to Bosco by the MEPs are reviewed and actioned.

Non-compliance	Description
Audit ref:9.6 With: Clause 17 of schedule 15.2 From/to: Entire audit period	AMI event information not adequately obtained and monitored. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	Bosco is monitoring and actioning events emailed by the MEP.

Actions taken to resolve the issue	Completion date	Remedial action Status
We will liaise with MEPs to ensure we are receiving the AMI event logs and will develop and implement a process so that we are taking the appropriate action.	Before end of 2017	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

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)

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
Bosco is not required to provide generation information to the pricing manager.

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

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
Bosco is not required to provide generation information to the pricing manager.

10.3 Loss adjustment of HHR metering information (Clause 13.138)

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
Bosco is not required to provide generation information to the pricing manager.

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

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
Bosco is not required to provide generation information to the pricing manager.

11. Provision of submission information for reconciliation

11.1 Buying and selling notifications (Clause 15.3)

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

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

Audit Observation
A registry list was reviewed to confirm that only RPS and HHR profiles were applied.

Audit Commentary
As Bosco is only using the RPS and HHR profiles, trading notifications were not required.

Compliance is confirmed.

11.2 Calculation of ICP days (Clause 15.6)

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.

Audit Observation

The process for the calculation of ICP days was examined by checking five NSPs with a small number of ICPs to confirm the AV110 ICP days calculation was correct.

I reviewed variances for 11 months of GR100 reports, and investigated any large discrepancies.

Audit Commentary

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

The following table shows the ICP days difference between Bosco files and the RM return file (GR100) for all available revisions for 11 months. Negative percentage figures indicate that the Bosco ICP days figures are higher than those contained on the registry. The discrepancies are very small.

Month	Ri	R1	R3	R7	R14
September 2015	-	-	-	-	0.00%
October 2015	-	-	-	-	0.00%
January 2016	-	-	-	0.00%	0.00%
February 2016	-	-	-	0.00%	0.00%
August 2016	0.01%	0.01%	0.00%	0.00%	-
September 2016	-0.04%	0.00%	0.00%	0.01%	-
October 2016	-0.02%	0.00%	0.00%	0.00%	-
November 2016	0.00%	0.00%	0.00%	-	-
December 2016	-0.01%	0.01%	0.00%	-	-
January 2017	-0.02%	-	0.01%	-	-
February 2017	0.00%	-0.02%	0.00%	-	-

Compliance is confirmed.

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

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.

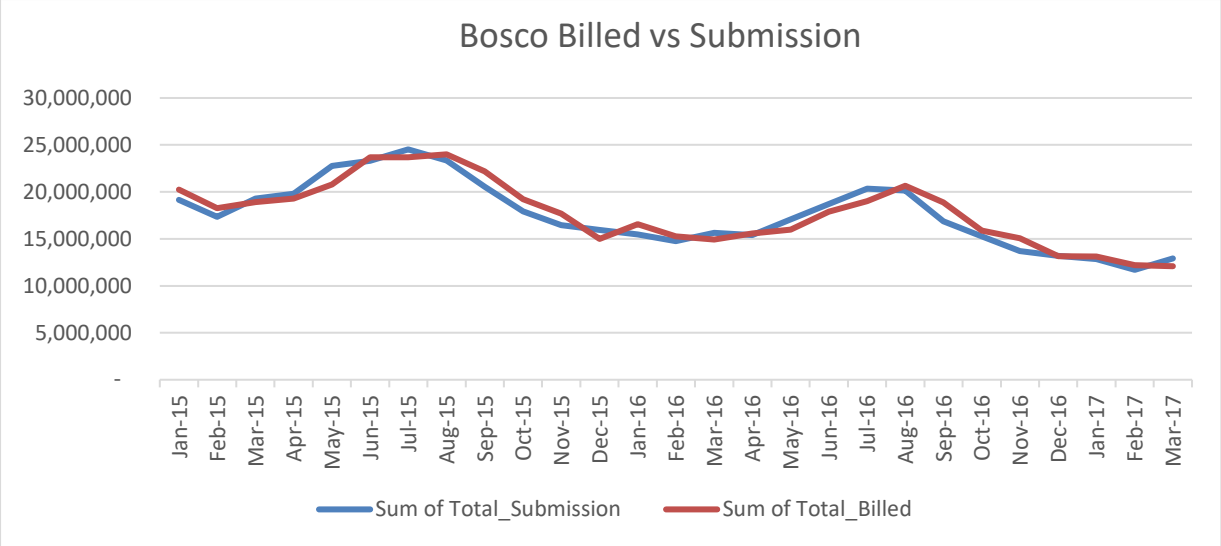
Review the GR130 reports for January 2015 onwards to confirm whether the relationship between billed and submitted data appears reasonable.

Audit Commentary

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

The table below shows a comparison between submissions and electricity supplied information. At an aggregate level, billed data is 0.76% higher than submitted data for the two years ended March 2017. The differences between billed and submitted data were reviewed. The main cause of the difference is timing, due to the one month offset.

Comparison between Submitted Volumes and Electricity Supplied



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

A retailer or direct purchaser (excluding direct consumers) must deliver to the reconciliation manager its total monthly quantity of electricity supplied for each half hourly metered ICP for which it has provided submission information to the reconciliation manager, including:
15.8(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period
15.8(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.

Audit Observation

I confirmed that the process for the calculation and aggregation of HHR data is correct, by matching HHR aggregates submissions with the HHR volumes submissions for five months, and matching a sample of volumes to the source files.

The "ICP Missing" files were examined for all revisions for January to May 2017. All ICPs with missing data were reviewed.

Audit Commentary

The "ICP Missing" files were examined for all revisions for January to May 2017. Only one instance of missing data was identified. In February 2017 there was one ICP with missing data, due to a switch withdrawal in progress. No issues with missing data were identified.

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 January, February, March, April and May 2017 submissions. I traced a sample of 10 full days of volumes from the source files to the HHR volumes submission, and matched the total monthly volumes to the HHR aggregates files.

The HHR Aggregates files are prepared at ICP level based on submission information. This has previously been recorded as compliant and this is the information expected by the reconciliation manager. It has recently been found that clause 15.8 states that the aggregates file should contain electricity supplied information rather than submission information and electricity supplied information is defined as shown below:

electricity supplied means, for any particular period, the information relating to the quantities of **electricity** supplied by **retailers** across **points of connection** to **consumers**, sourced directly from the **retailer's** financial records, including quantities—

(a) that are metered or unmetered; and
(b) supplied through normal **customer** supply and billing arrangements; and
(c) supplied under sponsorship arrangements; and
(d) supplied under any other arrangement

This differs from the Reconciliation Manager Functional Specification. In Section 3 of the Reconciliation Manager Functional Specification, HHR Aggregates information is described as:
"…HHR submission information that is aggregated per ICP for the whole month (not half-hourly)",

which suggests an intention that this information should be sourced from submission information not electricity supplied information, which is covered by clause 15.7.

Type of information that is submission information	Description	Source	Classification in this document
information	electricity supplied information.		supplied
Monthly half-hour ICP aggregates	This is equivalent to the HHR submission information that is aggregated per ICP for the whole month (not half-hourly).	Purchasers (excluding direct consumers)	Monthly half-hour ICP aggregates

Data from the aggregates file is used to support other reporting by the Reconciliation Manager and will be of little value if it is based on Electricity Supplied data rather than submission data. Electricity Supplied data has a one month offset and invoicing is not required to occur within any specific timeframes.

Whilst the Code clearly states this file should be derived from financial records, I recommend Bosco liaises with other participants to consider recommending a Code change which will allow for the aggregates files used in the industry to remain unchanged.

Non-compliance	Description		
Audit ref: 11.4 With: Clause 15.8 of part 15 From/to: N/A	HHR aggregates file does not contain electricity supplied information. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong if code is changed Breach Risk Rating: 1		
Audit Risk Rating	Rationale for audit risk rating		
Low	Bosco is reporting submission volumes at ICP level as expected by the reconciliation manager.		
Actions taken to resolve the issue		Completion date	Remedial action Status
The HHR aggregates file issue is a known issue as noted, Impossible for participants to be compliant due to anomaly within code. Regarding the recommendation to liaise with other participants to consider recommending a Code change, a code change request was submitted to the EA by Switch Utilities Limited in August 2016.			No action planned
Preventative actions taken to ensure no further issues will occur		Completion date	

12. Submission computation

12.1 Daylight saving adjustment (Clause 15.36)

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

Audit Observation

Data processes for EMS were reviewed as part of their agent audit. A sample of four daylight savings adjustments were reviewed, including all HHR ICPs.

Audit Commentary

Data processes for agents were reviewed as part of EMS' agent audit. These reports are attached as appendices, and processes were confirmed to be compliant.

The "trading period run on" technique is used for daylight saving adjustment. This was confirmed by checking the files where daylight savings adjustment occurred. The correct number of trading periods were recorded.

Compliance is confirmed.

12.2 Creation of submission information (Clause 15.4)

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

Actual AV080, AV090, AV110 and AV140 submission dates and times on the allocation portal were compared to a list of expected submission dates and times. A typical sample of three months and 25 reports was reviewed.

A list of breaches was obtained from the Electricity Authority. There were no breaches for late provision of submission information.

A sample of HHR ICPs were checked to ensure that volumes were correctly recorded in **section 11.4.**

A sample of NHH ICPs were checked to make sure they are handled correctly, including unmetered load, all ICPs with distributed generation, and six vacant ICPs. 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 **section 8.1** and **8.2**.

Audit Commentary

No breaches had been recorded for late provision of submission information. I checked reconciliation submission dates and times on the allocation portal against a list of expected due dates and times for submissions made in March, April and May 2017. All submissions were made on time.

Reconciliation submissions are generated and checked by Bosco, before being passed to the Mercury Energy Services team for further review.

I walked through the submission review process with Bosco:

- low volume review, compared to the average consumption for the ICP; this includes review of any negative volumes
- high volume review – identifies high consumption compared to the average for the ICP
- for wash up submissions, ICP days changes between submissions are identified and reviewed, and a volume comparison to previous months is completed.

Any anomalies identified are investigated.

The NHH pre-submission review process includes:

- The reports reviewed by Bosco above are also provided to the Mercury Energy Services team for review
- GXP level comparison to the same period last year and previous month for initial submission. For revision submissions, a comparison to previous submissions for the month is also completed. If anomalies are identified, it is possible to drill down to ICP level to identify and investigate the cause of the difference.
- Exception reports are run to identify possible situations where meter rollovers have not been processed correctly, usually due to an incorrect number of dials being recorded. These are then investigated and corrected.

If any anomalies are found by the Energy Services team they are checked with Bosco. All pre-submission checks are reviewed by the Pricing Operations and Energy Services Manager, who provides approval via email. I saw evidence of this approval process.

Three NHH ICPs with distributed generation and injection/export meter registers were identified from the registry list with history, all were listed with installation type both and solar by the distributor. I reviewed the AV080 reports from October 2016 to May 2017, and confirmed that no injection consumption was submitted. The ICPs have now switched to other retailers.

One HHR ICP 1001123884LC508 was listed with installation type both and solar by the distributor. As there were no injection registers on the meter, no generation was reported.

Not reporting generation volumes is recorded as non-compliance below.

Non-compliance in relation to the installation of injection/export registers for ICPs 1000006286BPF3D and 1001123884LC508 is recorded in **section 6.1**.

Non-compliance	Description		
Audit ref: 12.2 With: Clause 15.4 From/to: October 2016-July 2017	Three ICPs had distributed generation, but no injection information was reported. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2		
Audit Risk Rating	**Rationale for audit risk rating**		
Low	All affected ICPs were switched out within four months of distributed generation being identified. Two switched out within one month. Bosco's normal process is not to accept customers with distributed generation. If a distributed generation customer is found, they arrange for the customer to switch the ICP to another retailer as soon as possible.		
Actions taken to resolve the issue		**Completion date**	**Remedial action Status**
These ICPs have all switched out. As soon as we identify that an ICP has DG we immediately take steps to advise the customer that we do not provide for DG.		Completed	No action planned
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Refer above comments.			

Review of vacant ICPs with consumption confirmed that consumption is correctly reported where an ICP is vacant. Consumption while inactive will only be reported if the ICP status is corrected to active. This is recorded as non-compliance in **section 8.1**.

Non-compliance in relation to a category 3 meter being submitted as NHH is raised in **section 12.9**.

HHR submissions are created and validated by EMS. Copies of submissions are provided to Bosco. EMS' agent audit was reviewed and no issues relating to creation of submission information were noted.

12.3 Allocation of submission information (Clause 15.5)

In preparing and submitting submission information, the reconciliation participant must allocate volume information for each ICP to the NSP indicated by the data held by the registry for the relevant consumption period at the time the reconciliation participant assembles the submission information. Volume information must be derived in accordance with Schedule 15.2.

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

Audit Observation

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.

HHR aggregation was checked in **section 11.4**.

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

Audit Commentary

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.

The Energy Services team check NHH submissions against balancing data received from the reconciliation manager and NSP notifications using an Access database. This process identifies any and adds any zero rows that are needed, and confirms that the before and after volume totals remain the same. This process was observed, and compliance is confirmed.

GR170 and AV080 files for September to November 2015, April 2016, June 2016, October 2016 and November 2016 were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required.

HHR reconciliation submissions are completed by EMS. I traced a sample of 10 full days of volumes from the source files to the HHR volumes submission, and matched the total monthly volumes to the HHR aggregates files. In all cases the data matched.

No upgrades from NHH to HHR, or downgrades from HHR to NHH were completed during the audit period.

Compliance is confirmed.

12.4 Grid owner volumes information (Clause 15.9)

The participant (if a grid owner) must deliver to the reconciliation manager for each point of connection for all of its GXPs, the following:
- submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period (clause 15.9(a))
- revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period (clause 15.9(b)).

Audit Observation
A registry list with history was reviewed for the audit period to confirm that Bosco has not supplied any GIPs.

Audit Commentary
Examination of the list file found that Bosco has not supplied any GIPs. Bosco is not required to report any grid owner volume information.

12.5 Provision of NSP submission information (Clause 15.10)

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
Bosco is not a local or embedded network owner.

Audit Commentary
Bosco is not a local or embedded network owner, and is not required to provide NSP submission information.

12.6 Grid connected generation (Clause 15.11)

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
A registry list with history was reviewed for the audit period to confirm that Bosco has not supplied any GIPs.

Audit Commentary

Examination of the list file found that Bosco has not supplied any GIPs. Bosco is not required to report any grid connected generation.

12.7 Accuracy of submission information (Clause 15.12)

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

AV080, AV090, AV110 and AV140 submission dates and times were reviewed on the allocation portal, to confirm that revised submissions are provided at the next available opportunity. Where revised submissions were not provided, I reviewed the data to confirm whether there had been any changes from the previous submission.

NHH corrections were reviewed in **section 8.1**. There were no HHR corrections during the audit period.

Audit Commentary

Review of submissions on the allocation portal confirmed revisions were submitted as expected.

Compliance is confirmed.

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

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

AV080 14 month revisions were reviewed for September, October and November 2015 to identify any forward estimate still existing.

Audit Commentary

Forward estimate remained for the final revisions for September, October and November 2015.

Previously, Bosco had a process in place to enter permanent estimate reads by the time of the 14 month revision. Due to a miscommunication following the last audit, Bosco stopped this process and instead focussed on attempting to obtain actual reads by the time of the 14 month revision. Bosco intends to reinstate the process to enter permanent estimate readings and I saw examples of permanent estimate reads in the system.

Non-compliance	Description
Audit ref: 12.8 With: Clause 4 of Schedule 15.2 From/to: September, October and November 2015 final revisions	Forward estimate remained for the final revisions for November 2015, December 2015 and January 2016. Not all meter readings were made permanent estimates by the 14 month revision. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2
Audit Risk Rating	Rationale for audit risk rating
Low	The forward estimate amount was 159 Kwh in the November 2015 14 month revision. Bosco will re-start their process to enter permanent estimate reads where an actual read cannot be obtained.

Actions taken to resolve the issue	Completion date	Remedial action Status
As noted, we will be doing this going forward.	Completed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments.		

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

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

Audit Observation

Aggregation and content of reconciliation submissions was reviewed.

Audit Commentary

Aggregation of the AV080 and AV110 submissions are covered in **sections 13.2** and **11.2** respectively. Aggregation of AV090 and AV140 submissions is discussed in **section 11.4**.

During the previous audit, two ICPs with category three meters and submission type NHH were identified. Both had HHR metering installed, and were changed to submission type HHR. Another ICP with category 3 metering and submission type NHH (0171405633LC64B) was identified during this audit.

Non-compliance	Description
Audit ref: 12.9 With: Clause 2 Schedule 15.3 From/to: December 2015 onwards	One ICP with a category 3 meter has submission type NHH. 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	One ICP is affected, HHR metering is already installed.

Actions taken to resolve the issue	Completion date	Remedial action Status
The registry has been updated for ICP 0171405633LC64B to show submission as HHR from meter install date 12.04.2017.	Completed	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

Unmetered load was checked and confirmed to be reported correctly in **section 12.11**. Certification of control devices is discussed in **section 6.3**.

Bosco does not deal with any loss and compensation arrangements, as discussed in **section 8.3**.

Compliance is confirmed.

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

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 18 AV080 submissions for revisions 3 to 14, 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 18 AV080 submissions for a diverse sample of months and revisions and confirm that forward and historic estimates are included, and identified as such. Compliance is confirmed.

12.11 Historical estimate process (Clause 4 and 5 Schedule 15.3)

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

Bosco provided examples of historic estimate calculations, which were reviewed. The check of calculations included confirming that readings and Seasonal Adjusted Shape Values (SASV) were applied correctly. The table below shows that all scenarios tested are compliant.

The process for managing shape files was examined. The RM files are downloaded, and the automated import process uploads the files into Ezy Business beginning with the oldest file and ending with the newest.

Audit Commentary

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

Test	Scenario	Test expectation	Result
A	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
B	ICP becomes Active then Inactive within a month.	Consumption is only calculated for the Active portion of the month.	Compliant
C	ICP becomes Inactive, then Active, then Inactive again within a month.	Consumption is only calculated for the Active portion of the month.	Has not occurred
D	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Compliant
E	ICP Starts on the 1st day of a month.	Consumption is calculated to include the 1st day of responsibility.	Compliant
F	ICP Ends on the Last Day of the month.	Consumption is calculated to include the last day of responsibility.	Compliant
G	ICP Starts part way through a month.	Consumption is calculated to include the 1st day of responsibility.	Compliant

Test	Scenario	Test expectation	Result
H	ICP Ends part way through a month.	Consumption is calculated to include the last day of responsibility.	Compliant
I & J	ICP is Lost and Won Back in a month.	Consumption is calculated for each day of responsibility.	Compliant for portion prior to switch out, no examples with historic estimate for the period after the ICP switched back were available.
K	Unmetered load for a full month	Consumption is calculating based on daily unmetered kWh for full month.	Compliant
L	Unmetered load for a part month	Consumption is calculating based on daily unmetered kWh for active days of the month.	Has not occurred
M	ICP Starts on 1st and Ends on Last day of month.	Consumption is calculated for each day of responsibility.	Compliant
N	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant

Consumption while inactive will only be reported if the ICP status is corrected to active. This is recorded as non-compliance in **section 8.1**.

12.12 Forward estimate process (Clause 6 Schedule 15.3)

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

Forward estimate is calculated using two methods:

If an estimate read has been entered for billing, this read is used to calculate the average daily consumption for the estimated period. Billing estimates are calculated using the following methods, in descending order of preference

- estimate based on available smart reads
- estimate based on the previous consumption period x seasonal scaling factor
- estimate based on the daily average from the switch gain file.

If a billing estimate has not been created, the daily average consumption for the meter register is used, with no scaling adjustment applied. The daily average consumption is initially populated from the switch gain file, then recalculated based on the two most recent actual reads, at least 60 days apart.

The accuracy of the initial submission, in comparison to each subsequent revision is required to be within 15% and within 100,000kWh. The table below shows the target was met for most revisions. Non-compliance is recorded below.

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

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total
Sept 2015	1	1	1	1	33
Oct 2015	0	1	1	1	33
Nov 2015	0	0	0	0	32
Jun 2016	0	0	0	-	32
Jul 2016	0	0	0	-	32
Aug 2016	0	0	0	-	32
Sep 2016	0	0	-	-	32
Oct 2016	0	0	-	-	34
Nov 2016	0	0	-	-	34

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Sept 2015	1.68%	2.83%	2.81%	2.74%
Oct 2015	8.61%	11.46%	11.59%	11.38%
Nov 2015	4.18%	6.19%	6.23%	6.14%
Jun 2016	-5.99%	-6.55%	-6.52%	-
Jul 2016	-5.69%	-6.00%	-5.92%	-
Aug 2016	-1.10%	-0.09%	-0.09%	-
Sep 2016	5.55%	7.44%	-	-
Oct 2016	7.39%	10.49%	-	-
Nov 2016	5.21%	7.37%	-	-

I checked some balancing area specific variations and in most cases, the issues relate to areas where estimates were replaced with actuals, or the application of seasonal adjustment shape files. In one case there was a large negative consumption reported for one ICP in error, which was missed in the initial allocation checks, but identified and corrected in time for revision 1.

Non-compliance	Description		
With: Clause 6 of Schedule 15.3 From/to: Sep 15 and Oct 15	FE accuracy threshold not met for some balancing areas. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach Risk Rating: 2		
Audit Risk Rating	Rationale for audit risk rating		
Low	Initial data is replaced with revised data, and washed up.		
Actions taken to resolve the issue		Completion date	Remedial action Status
A robust process is in place; we will monitor and review the process as required. Some variance is to be expected due to no reads or estimated reads on the initial submission. To some extent, these variances are unavoidable (for example, as a result of a small numbers of ICPs having seasonal consumption only) and should be considered likely to recur.			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Refer above comments			

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

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

A registry list was reviewed to confirm that Bosco has used the RPS and HHR profiles.

The registry list with history for the audit period was examined to identify all ICPs which had a profile change during the audit period.

Audit Commentary

In the event of a profile change, Bosco will use a validated meter reading or a permanent estimate on the day that the change is effective.

Profile changes occurred for ICPs 0048669207LC35A and 0104636781LCF8F, when their submission types changed. Reads were recorded on the day of the profile change. Compliance is confirmed.

13. Submission format and timing

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

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

Audit Observation

I reviewed meter reading reports for January to May 2017, to confirm that they meet the meter reading frequency report requirements.

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

Audit Commentary

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

The reports are scheduled to be run at the beginning of each month, and submitted prior to the 20th business day.

Compliance is confirmed.

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

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

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

Audit Observation

The process to ensure that AV080 submissions are accurate was discussed. Aggregation of the AV080 report was checked for a sample of small NSPs for one month.

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

Audit Commentary

I checked aggregation for a sample of five NSPs on the March 2017 report, and found that the AV080 was aggregated correctly. Compliance with the requirement to use correct aggregation factors is confirmed.

13.3 Reporting resolution (Clause 9 Schedule 15.3)

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.

Audit Commentary

Review of 18 AV080 non half hour volumes reports confirmed that submission data is rounded to zero decimal places.

Review of five AV-090 half hour volumes reports confirmed that submission data is rounded to zero decimal places

Review of five AV-140 half hour aggregates reports confirmed that submission data is rounded to two decimal places.

Compliance is confirmed, as no volume information is rounded to more than two decimal places.

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

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

Audit Commentary

The quantity of historical estimates is contained in the submission file and is not a separate report. Historic estimate targets were not met for all revisions.

Quantity of NSPs where revision targets were met.

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Sep 2015	70	70	70	70
Oct 2015	70	71	71	71
Nov 2015	66	67	66	68
April 2016	67	69	69	69
May 2016	66	68	68	68
Jun 2016	66	68	68	68
Oct 2016	65	67	67	67
Nov 2016	64	66	66	66
Dec 2016	64	65	65	65

The table below shows that the percentage HE at a summary level is below the required targets.

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Sep 2015	99.07%	99.85%	100.00%
Oct 2015	98.73%	99.72%	100.00%
Nov 2015	98.55%	99.42%	100.00%
April 2016	98.86%	99.88%	-
May 2016	99.09%	99.95%	-
Jun 2016	99.09%	99.92%	-
Oct 2016	99.44%	-	-
Nov 2016	99.32%	-	-
Dec 2016	99.31%	-	-

Non-compliance	Description
Audit ref: 13.4 **With:** Clause 10 of Schedule 15.3 **From/to:** Oct 2015, Nov 2015, Apr 2016, May 2016, Jun 2016, Oct 2016, Nov 2016 and Dec 2016.	Historic estimate targets were not met for all revisions. **Potential impact:** Low **Actual impact:** Low **Audit history:** Once **Controls:** Moderate Breach Risk Rating: 2
Audit Risk Rating	**Rationale for audit risk rating**
Low	Bosco were close to the target in all cases.

Actions taken to resolve the issue	Completion date	Remedial action Status
The improvements that we are implementing in terms of read attainment should be reflected in higher compliance in this area.	Before end of 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer above comments		

14. Conclusions

This audit is for the EZYN participant code only.

The audit found 26 non-compliance issues, and four recommendations are made. Six of the issues relate to switching and five relate to registry management. The area of registry validation and CS file content requires some improvements in order to resolve these. The other 15 issues relate to various areas.

There have been some improvements since the last audit with stronger controls in place around the updating of status in Ezy Business and the management of field contractors.

Some of the matters raised have led to incorrect information being provided to the Reconciliation Manager. They are as follows:

- distributed generation consumption is not reported
- one ICP with a category 3 meter has submission type NHH
- 11 ICPs with consumption while disconnected have not had all their consumption while disconnected reported

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

The matters raised are shown in the tables below:

The matters raised are shown in the tables below:

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Relevant information	2.1	11.2 of part 11	Some registry discrepancies identified and not being checked.	Moderate	Low	2	Identified
Changes to registry	3.3	10 of schedule 11.1	Registry not updated within 5 business days of the event.	Moderate	Low	2	Identified
Provision of information	3.5	9 of schedule 11.1	Registry information not provided within 5 business days of commencement of supply for 6 new connections.	Strong	Low	1	Identified
ANZSIC codes	3.6	9(1)(k) of schedule 11.1	6 active ICPs with no or incorrect ANZSIC codes	Weak	Low	3	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			assigned.				
Active status	3.8	17 of schedule 11.1	Incorrect active dates recorded for two reconnected ICPs.	Moderate	Low	2	Disputed
Inactive status	3.9	19 of schedule 11.1	Status misalignment between Ezy Business and the registry for two ICPs.	Moderate	Low	2	Investigating
Switching	4.2	3 & 4 of schedule 11.3	Incorrect sending of the AA response codes for transfer switches.	Weak	Low	3	Investigating
	4.3	5 of schedule 11.3	Incorrect CS file content. Some late CS files.	Weak	Low	3	Investigating
	4.8	10 of schedule 11.3	Incorrect sending of the AN code response sent. Some late CS files.	Weak	Low	3	Investigating
	4.10	11 of schedule 11.3	Incorrect CS file content.	Weak	Low	3	Identified
	4.11	12 of schedule 11.3	1 late RR file sent. 1 late AC file sent.	Strong	Low	1	Identified
	4.15	17 of schedule 11.3	10 switch withdrawals sent later than 2 months of the event date. 3 late AW responses sent.	Strong	Low	1	Identified
Distributed unmetered load	5.4	11(1) of schedule 15.3, 10.14 & 15.13	Incorrect submission in relation to one DUML databases.	Moderate	Low	2	Investigating
Electricity conveyed	6.1	10.13	Energy is not metered and quantified according to the code where meters are bridged.	Moderate	Low	2	Identified
Derivation of meter readings	6.6	5 of Schedule 15.2	Checks for phase failure not conducted. Customer photo reads treated as actuals. Meter condition information not managed.	Weak	Low	3	Investigating
Interrogate meters once	6.8	7(1) & (2) of schedule 15.2	No reporting in place to quantify ICPs not interrogated at least once during the period of supply.	Weak	Low	3	Investigating
NHH meters	6.9	(1) & (2) of	For one ICP without an actual	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
interrogated annually		schedule 15.2	read for 12 months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.				
90% read target	6.10	9 of schedule 15.2	For seven ICP without an actual read for four months, exceptional circumstances could not be confirmed, and there was insufficient evidence that the best endeavours requirement was met.	Moderate	Low	2	Identified
Correction of NHH meter readings	8.1	19(1) Schedule 15.2	Eleven ICPs with consumption while disconnected, have not had all their consumption while disconnected reported. Where a meter reading is modified by Bosco, including being recorded against a different meter or register or having its value changed, it should be recorded as an estimated reading. Only readings that exactly match the details in the source file should be recorded as actual validated readings.	Moderate	Low	2	Investigating
Event logs	9.6	17 of schedule 15.2	AMI event information not adequately obtained and monitored.	Weak	Low	3	Investigating
HHR aggregates information	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	No action planned
Creation of submission information	12.2	15.4	Three ICPs had distributed generation, but no injection information was reported.	Moderate	Low	2	No action planned
Permanence of meter readings	12.8	4 of schedule 15.2 and clause 15.2 of part 15	Forward estimate remained for the final revisions for November 2015, December 2015 and January 2016. Not all meter readings were made permanent estimates by the 14	Moderate	Low	2	Identified

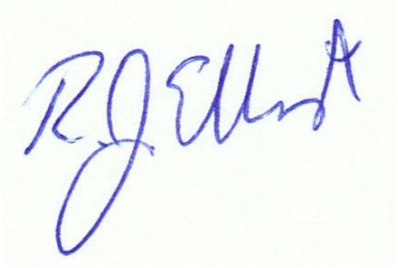
Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			month revision.				
RP to prepare information	12.9	2 Schedule 15.3	One ICP with a category 3 meter has submission type NHH.	Moderate	Low	2	Cleared
Forward estimate accuracy	12.12	6 of Schedule 15.3	FE accuracy threshold not met for some balancing areas.	Moderate	Low	2	Identified
HE targets	13.4	10 of Schedule 15.3	Historic estimate targets were not met for all revisions.	Moderate	Low	2	Identified
				Future Risk Rating	56		
				Indicative Next Audit Frequency	3 months		

Future risk rating	0	1-3	4-14	16-40	41-55	55+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

Table of Recommendations

Subject	Section	Clause	Recommendation	Remedial action
Relevant information	2.1	11.2 of part 11	Review status discrepancy process to ensure ICP status aligns between systems.	Investigating
Changes to unmetered load	3.7	9(1)(f) of schedule 11.1	Investigate if UML exists for ICP 1000010602BPA5D.	Investigating
Interrogate meters once	6.8	9(1) & (2) of schedule 15.2 and clause 15.2	Where reads are not received from AMI meters, Bosco should advise the MEP so they can investigate and update the AMI flag on the registry if necessary.	Investigating
		7(1) & (2) of schedule 15.2	Develop reporting to measure ICPs not reads during period of supply.	Investigating

Signed by:



Rebecca Elliot
Veritek Limited
Electricity Authority Approved Auditor

Signed by:

Andrew Peckham
Operations Manager

6. Bosco Response

Bosco have reviewed this report and their comments are recorded within the report. No further comments were provided.

7. Agent's Audit Reports

Datacol
EMS
EDMI
Wells