

ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT



For

BOSCO CONNECT LIMITED

Prepared by: Steve Woods and Rebecca Elliot

Date audit commenced: 5 December 2019

Date audit report completed: 27 May 2020

Audit report due date: 28 May 2020

TABLE OF CONTENTS

Executive summary	5
Audit summary	6
Non-compliances	6
Recommendations	9
Issues 9	
1. Administrative	10
1.1. Exemptions from Obligations to Comply with Code (Section 11)	10
1.2. Structure of Organisation	11
1.3. Persons involved in this audit	12
1.4. Use of Agents (Clause 15.34)	12
1.5. Hardware and Software	13
1.6. Breaches or Breach Allegations	13
1.7. ICP Data	13
1.8. Authorisation Received	14
1.9. Scope of Audit	15
1.10. Summary of previous audit	17
2. Operational Infrastructure	20
2.1. Relevant information (Clause 10.6, 11.2, 15.2)	20
2.2. Provision of information (Clause 15.35)	23
2.3. Data transmission (Clause 20 Schedule 15.2)	23
2.4. Audit trails (Clause 21 Schedule 15.2)	24
2.5. Retailer responsibility for electricity conveyed - participant obligations (Clause 10.4) ..	25
2.6. Retailer responsibility for electricity conveyed - access to metering installations (Clause 10.7(2),(4),(5) and (6))	25
2.7. Physical location of metering installations (Clause 10.35(1) & (2))	26
2.8. Trader contracts to permit assignment by the Authority (Clause 11.15B)	27
2.9. Connection of an ICP (Clause 10.32)	27
2.10. Temporary Electrical Connection of an ICP (Clause 10.33(1))	28
2.11. Electrical Connection of Point of Connection (Clause 10.33A)	29
2.12. Arrangements for line function services (Clause 11.16)	29
2.13. Arrangements for metering equipment provision (Clause 10.36)	30
3. Maintaining registry information	31
3.1. Obtaining ICP identifiers (Clause 11.3)	31
3.2. Providing registry information (Clause 11.7(2))	31
3.3. Changes to registry information (Clause 10 Schedule 11.1)	32
3.4. Trader responsibility for an ICP (Clause 11.18)	35
3.5. Provision of information to the registry manager (Clause 9 Schedule 11.1)	36
3.6. ANZSIC codes (Clause 9 (1)(k) of Schedule 11.1)	37
3.7. Changes to unmetered load (Clause 9(1)(f) of Schedule 11.1)	38
3.8. Management of “active” status (Clause 17 Schedule 11.1)	39
3.9. Management of “inactive” status (Clause 19 Schedule 11.1)	40
3.10. ICPs at new or ready status for 24 months (Clause 15 Schedule 11.1)	41
4. Performing customer and embedded generator switching	42
4.1. Inform registry of switch request for ICPs - standard switch (Clause 2 Schedule 11.3) ..	42

4.2.	Losing trader response to switch request and event dates - standard switch (Clauses 3 and 4 Schedule 11.3)	42
4.3.	Losing trader must provide final information - standard switch (Clause 5 Schedule 11.3).....	43
4.4.	Retailers must use same reading - standard switch (Clause 6(1) and 6A Schedule 11.3).....	45
4.5.	Non-half hour switch event meter reading - standard switch (Clause 6(2) and (3) Schedule 11.3)	46
4.6.	Disputes - standard switch (Clause 7 Schedule 11.3).....	47
4.7.	Gaining trader informs registry of switch request - switch move (Clause 9 Schedule 11.3)	47
4.8.	Losing trader provides information - switch move (Clause 10(1) Schedule 11.3)	48
4.9.	Losing trader determines a different date - switch move (Clause 10(2) Schedule 11.3)	49
4.10.	Losing trader must provide final information - switch move (Clause 11 Schedule 11.3).....	50
4.11.	Gaining trader changes to switch meter reading - switch move (Clause 12 Schedule 11.3)	52
4.12.	Gaining trader informs registry of switch request - gaining trader switch (Clause 14 Schedule 11.3)	54
4.13.	Losing trader provision of information - gaining trader switch (Clause 15 Schedule 11.3).....	55
4.14.	Gaining trader to advise the registry manager - gaining trader switch (Clause 16 Schedule 11.3)	55
4.15.	Withdrawal of switch requests (Clauses 17 and 18 Schedule 11.3).....	56
4.16.	Metering information (Clause 21 Schedule 11.3)	58
4.17.	Switch saving protection (Clause 11.15AA to 11.15AB).....	59
5.	Maintenance of unmetered load	61
5.1.	Maintaining shared unmetered load (Clause 11.14).....	61
5.2.	Unmetered threshold (Clause 10.14 (2)(b))	62
5.3.	Unmetered threshold exceeded (Clause 10.14 (5))	62
5.4.	Distributed unmetered load (Clause 11 Schedule 15.3, Clause 15.37B).....	63
6.	Gathering raw meter data	64
6.1.	Electricity conveyed & notification by embedded generators (Clause 10.13, Clause 10.24 and 15.13)	64
6.2.	Responsibility for metering at GIP (Clause 10.26 (6), (7) and (8)).....	65
6.3.	Certification of control devices (Clause 33 Schedule 10.7 and clause 2(2) Schedule 15.3).....	65
6.4.	Reporting of defective metering installations (Clause 10.43(2) and (3))	66
6.5.	Collection of information by certified reconciliation participant (Clause 2 Schedule 15.2).....	66
6.6.	Derivation of meter readings (Clause 3(1), 3(2) and 5 Schedule 15.2)	67
6.7.	NHH meter reading application (Clause 6 Schedule 15.2)	68
6.8.	Interrogate meters once (Clause 7(1) and (2) Schedule 15.2)	69
6.9.	NHH meters interrogated annually (Clause 8(1) and (2) Schedule 15.2)	71
6.10.	NHH meters 90% read rate (Clause 9(1) and (2) Schedule 15.2)	73
6.11.	NHH meter interrogation log (Clause 10 Schedule 15.2)	75
6.12.	HHR data collection (Clause 11(1) Schedule 15.2)	76
6.13.	HHR interrogation data requirement (Clause 11(2) Schedule 15.2)	76
6.14.	HHR interrogation log requirements (Clause 11(3) Schedule 15.2)	77
7.	Storing raw meter data	78
7.1.	Trading period duration (Clause 13 Schedule 15.2)	78
7.2.	Archiving and storage of raw meter data (Clause 18 Schedule 15.2)	78
7.3.	Non-metering information collected / archived (Clause 21(5) Schedule 15.2)	79

8.	Creating and managing (including validating, estimating, storing, correcting and archiving) volume information.....	80
8.1.	Correction of NHH meter readings (Clause 19(1) Schedule 15.2).....	80
8.2.	Correction of HHR metering information (Clause 19(2) Schedule 15.2).....	80
8.3.	Error and loss compensation arrangements (Clause 19(3) Schedule 15.2)	81
8.4.	Correction of HHR and NHH raw meter data (Clause 19(4) and (5) Schedule 15.2)	81
9.	Estimating and validating volume information.....	83
9.1.	Identification of readings (Clause 3(3) Schedule 15.2).....	83
9.2.	Derivation of volume information (Clause 3(4) Schedule 15.2)	84
9.3.	Meter data used to derive volume information (Clause 3(5) Schedule 15.2).....	84
9.4.	Half hour estimates (Clause 15 Schedule 15.2).....	85
9.5.	NHH metering information data validation (Clause 16 Schedule 15.2)	86
9.6.	Electronic meter readings and estimated readings (Clause 17 Schedule 15.2)	87
10.	Provision of metering information to the pricing manager in accordance with subpart 4 of Part 13 (clause 15.38(1)(f))	89
10.1.	Generators to provide HHR metering information (Clause 13.136)	89
10.2.	Unoffered & intermittent generation provision of metering information (Clause 13.137).....	89
10.3.	Loss adjustment of HHR metering information (Clause 13.138).....	90
10.4.	Notification of the provision of HHR metering information (Clause 13.140)	90
11.	Provision of submission information for reconciliation.....	91
11.1.	Buying and selling notifications (Clause 15.3)	91
11.2.	Calculation of ICP days (Clause 15.6)	91
11.3.	Electricity supplied information provision to the reconciliation manager (Clause 15.7).....	93
11.4.	HHR aggregates information provision to the reconciliation manager (Clause 15.8)	94
12.	Submission computation	96
12.1.	Daylight saving adjustment (Clause 15.36)	96
12.2.	Creation of submission information (Clause 15.4)	96
12.3.	Allocation of submission information (Clause 15.5)	98
12.4.	Grid owner volumes information (Clause 15.9)	99
12.5.	Provision of NSP submission information (Clause 15.10)	100
12.6.	Grid connected generation (Clause 15.11).....	100
12.7.	Accuracy of submission information (Clause 15.12)	101
12.8.	Permanence of meter readings for reconciliation (Clause 4 Schedule 15.2).....	103
12.9.	Reconciliation participants to prepare information (Clause 2 Schedule 15.3)	104
12.10.	Historical estimates and forward estimates (Clause 3 Schedule 15.3).....	105
12.11.	Historical estimate process (Clause 4 and 5 Schedule 15.3)	106
12.12.	Forward estimate process (Clause 6 Schedule 15.3)	107
12.13.	Compulsory meter reading after profile change (Clause 7 Schedule 15.3).....	109
13.	Submission format and timing.....	110
13.1.	Provision of submission information to the RM (Clause 8 Schedule 15.3)	110
13.2.	Reporting resolution (Clause 9 Schedule 15.3)	111
13.3.	Historical estimate reporting to RM (Clause 10 Schedule 15.3)	111
	Conclusion	114
	Participant response	115

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 V7.2

This audit is for the EZYN participant code only.

The audit found 19 non-compliance issues, down from 24 during the last audit. One recommendation is made.

Controls have improved in the registry and switching areas since the last audit. Some issues remain, as follows:

- the disconnection process still has a 3-day delay before the registry is updated, these updates should occur as soon as notification arrives,
- the date of the last read in CS files is from “meter reads” table not “smart reads” table, because smart reads are not always used even though they are available, also, only meter reads (billable reads) are used as switch reads even when a smart read is available, and
- the RR process requires a better audit trail.

The main issue still to be resolved is the processing of historic corrections for submission purposes. There are still examples of stopped meters, consumption in inactive ICPs and generation volume where the corrections have not been processed. Whilst the consumption in question is low and the audit risk rating is low, the weak controls in this area could allow for under submission of larger volumes. The Authority recommended specific focus on this area after the previous audit.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and contains a future risk rating score of 39, which results in an indicative audit frequency of 12 months. This is an improvement from a score of 52 in the previous audit, but some issues from the previous audit are still present. I have considered this result in conjunction with Bosco’s responses and I recommend a 15-month audit period.

The matters raised are shown in the tables below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Relevant information	2.1	10.6,11.2 & 15.2	<p>Some corrections not conducted as soon as practicable.</p> <p>Correction for ICP 0167074458LC2DC incorrectly processed resulting in under submission of 153 kWh.</p> <p>Corrections from the two previous audits not carried out resulting in under submission of 6,791 kWh from the 2018 audit and 2,605 kWh from the 2019 audit.</p>	Moderate	Low	2	Identified
Changes to registry information	3.3	10 of schedule 11.1	Registry not updated within 5 business days of the event.	Moderate	Low	2	Identified
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	At least four ICPs had incorrect ANZSIC codes assigned.	Moderate	Low	2	Identified
Inactive status	3.9	19 Schedule 11.1	Incorrect inactive status for 20 ICPs.	Moderate	Low	2	Identified
Losing trader must provide final information - standard switch	4.3	5 of schedule 11.3	<p>One incorrect average daily consumption.</p> <p>Readings from "smart reads" tab not used as switch event meter readings.</p> <p>One ICP had an actual read recorded as an estimate.</p>	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Losing trader must provide final information - switch move	4.10	11 of schedule 11.3	Some incorrect CS file content. 29 late switch move CS files.	Moderate	Low	2	Identified
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	Two RRs without confirmation of how the reads were calculated. One RR file was rejected and should not have been.	Moderate	Low	2	Identified
Withdrawal of switch requests	4.15	17 & 18 of schedule 11.3	One switch withdrawal sent later than two months of the event date.	Strong	Low	1	Identified
Metering information	4.16	21 Schedule 11.3	Some incorrect CS file switch event readings.	Weak	Low	3	Identified
NHH meter reading application	6.7	6 Schedule 15.2	For three CS files issued by Bosco, switch event reads did not reflect the actual reading or best estimate of an actual reading on the event date.	Moderate	Low	2	Identified
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	Best endeavours not demonstrated for 38 ICPs with a short period of supply.	Moderate	Low	2	Identified
NHH meters interrogated annually	6.9	8(1) and (2) Schedule 15.2	5 ICPs not read and exceptional circumstances were not present.	Moderate	Low	2	Identified
NHH meters 90% read rate	6.10	(1) and (2) Schedule 15.2	The best endeavours requirement was not met for three ICPs unread for four months.	Moderate	Low	2	Identified
Identification of readings	9.1	3(3) Schedule 15.2	Two readings incorrectly labelled.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Rounding of data	9.3	3(5) of schedule 15.2.	Raw meter data is rounded upon receipt and not when volume information is created.	None	Low	5	Investigating
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	Disputed
Creation of submission information	12.2	15.4	One ICP with consumption while inactive did not have status corrections processed and submission did not occur.	Moderate	Low	2	Identified
Accuracy of submission information	12.7	15.12	<p>Submission occurred for one HHR ICP after it switched away.</p> <p>16 corrections for consumption while inactive not carried out as BAU.</p> <p>Correction for ICP 0167074458LC2DC incorrectly processed resulting in under submission of 153 kWh</p> <p>Corrections from the two previous audits not carried out resulting in under submission of 6,791 kWh from the 2018 audit and 2,605 kWh from the 2019 audit.</p>	Moderate	Low	2	Identified
Permanence of readings	12.8	4 of Schedule 15.2	Four forward estimates were not replaced by revision 14 for September 2018.	Strong	Low	1	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Future Risk Rating						39	

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

RECOMMENDATIONS

Subject	Section	Description	Recommendation
Interrogate meters once	6.9	NHH meters interrogated annually	Update inactive ICPs where notes indicate the ICP is ready for decommissioning.

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

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

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

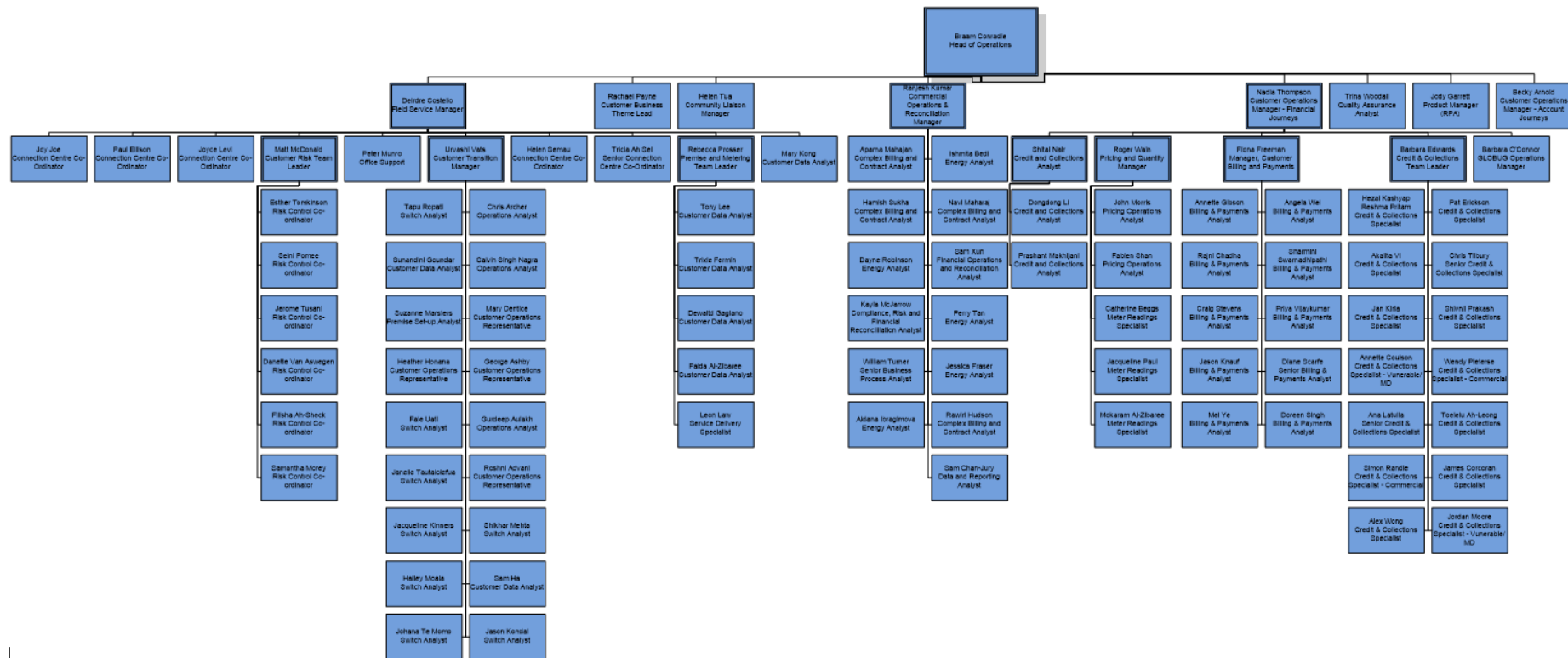
Current code exemptions were reviewed on the Electricity Authority website.

Audit commentary

Bosco has no exemptions in place.

1.2. Structure of Organisation

Bosco provided their current organisational structure, which also includes Mercury:



1.3. Persons involved in this audit

Auditors:

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

Bosco personnel assisting in this audit were:

Name	Title
Greg Bindon	System Development Engineer
Leon Law	Service Delivery Specialist
Hailey Moala	Switch Analyst

Mercury personnel assisting in this audit were:

Name	Title
Ranjesh Kumar	Pricing Operations and Energy Services Manager
Urvashi Vats	Customer Transition Manager

1.4. Use of Agents (Clause 15.34)

Code reference

Clause 15.34

Code related audit information

A reconciliation participant who uses an agent

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

Audit observation

Use of agents was discussed with Bosco.

Audit commentary

Bosco uses some agents for functions covered by the scope of this audit. They are identified in **section 1.9**.

- EMS provides HHR data collection and reconciliation services, and
- Wells provides NHH data.

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

AMS and IntelliHUB provide AMI data as MEPs and are subject to a separate audit regime.

1.5. Hardware and Software

Software

- SAP Business One
- Microsoft Office
- EzyBusiness - manages the customer interface, reconciliation, meter reading
- Microsoft SQL Server 2008
- Citrix
- Mozilla Firefox/ Internet Explorer.

Hardware

- Various servers on OneNet
- HP desktop PCs.

Backup processes are managed by OneNet in accordance with standard practices.

1.6. Breaches or Breach Allegations

No breaches have been alleged during the audit period.

1.7. ICP Data

All active ICPs are summarised by metering category in the table below.

Metering Category	2020	2019	2018	2017
1	5,726	6,476	19,669	24,506
2	16	18	75	94
3	2	3	4	4
4	-	-	-	159
5	-	-	-	0
9	-	2	2	2
Blank	-	-	2	2

Status	Number of ICPs (2020)	Number of ICPs (2019)	Number of ICPs (2018)	Number of ICPs (2017)
Active (2,0)	5,744	6,499	19,752	24,608
Inactive – new connection in progress (1,12)	-	-	7	5
Inactive – electrically disconnected vacant property (1,4)	20	16	97	149
Inactive – reconciled elsewhere (1,5)	-	-	-	-
Inactive – electrically disconnected ready for decommissioning (1,6)	-	-	4	4
Inactive – electrically disconnected remotely by AMI meter (1,7)	-	-	-	0
Inactive – electrically disconnected at pole fuse (1,8)	-	-	8	28
Inactive – electrically disconnected due to meter disconnected (1,9)	13	13	29	13
Inactive – electrically disconnected at meter box fuse (1,10)	-	-	-	1
Inactive – electrically disconnected at meter box switch (1,11)	-	-	-	-
Decommissioned (3)	305	293	283	232

1.8. Authorisation Received

Bosco provided all information requested; a letter of authorisation was not required.

1.9. Scope of Audit

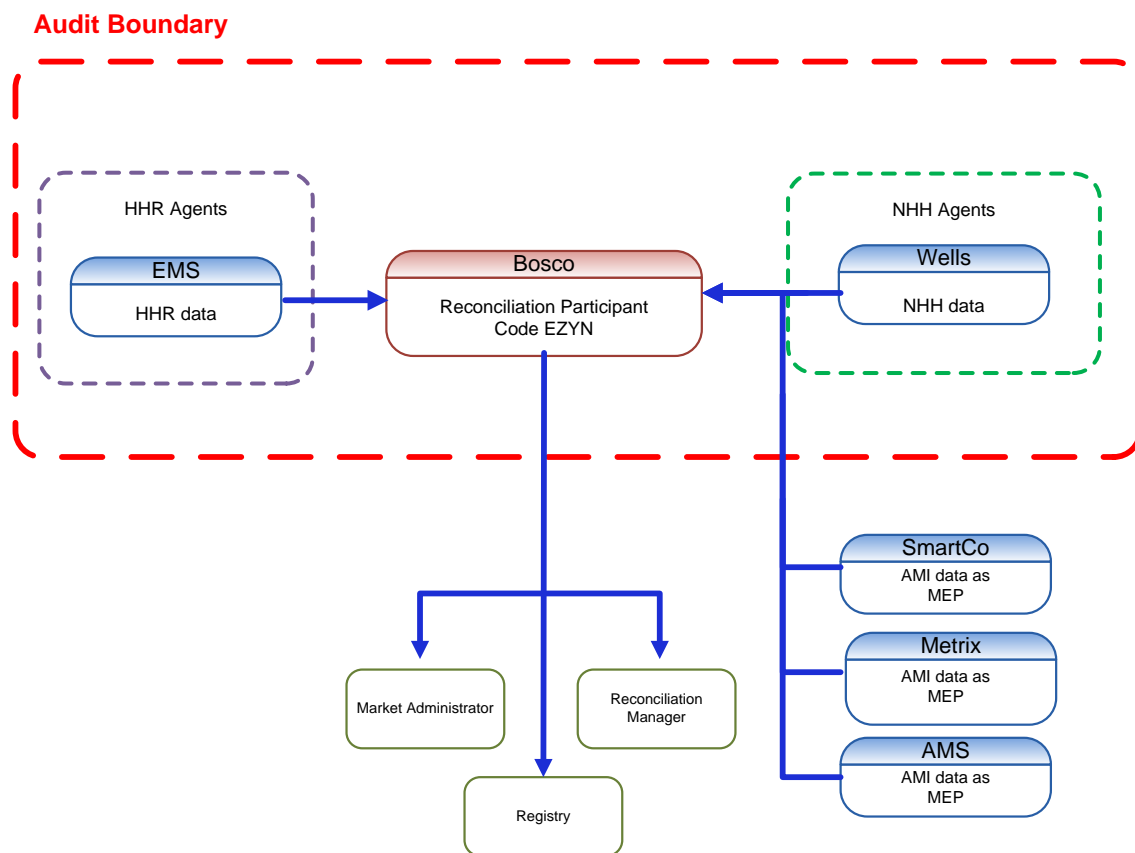
This Electricity Industry Participation Code Reconciliation Participant audit was performed at the request of Bosco, to support their application for renewal of certification in accordance with clauses 5 and 7 of schedule 15.1.

The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits V7.2

The audit was carried out at Bosco's premises in Auckland on 25-27 February 2020.

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

This report is for the EZYN 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	EMS – HHR Wells – NHH
(c)(iii) - Creation and management of HHR and NHH volume information	EMS – HHR Wells – NHH
(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	EMS - HHR
(e) – Provision of submission information for reconciliation	EMS - HHR

The audit reports for the agents listed above will be submitted with this audit. This report only contains details of those areas where issues were identified or where additional analysis was conducted specifically for Bosco. The agents' reports contain all the remaining detail. Where the report was more than seven months old on the audit due date, I confirmed with the agent that that there had been no changes to systems or processes which could affect Bosco's compliance.

1.10. Summary of previous audit

Bosco provided a copy of their previous audit report conducted in March 2019 by Steve Woods (lead auditor) of Veritek Limited. The summary tables below show that some of the issues have been resolved and some are still existing. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Relevant information	2.1	10.6,11.2 & 15.2	Some corrections not conducted as soon as practicable.	Still existing
Electrical Connection of Point of Connection	2.11	10.33A	Three ICPs were not certified within five business days of reconnection.	Cleared
Changes to registry information	3.3	10 of schedule 11.1	Registry not updated within 5 business days of the event.	Still existing
ANZSIC codes	3.6	9 (1(k) of Schedule 11.1	Eight ICPs had incorrect ANZSIC codes assigned.	Still existing
Inactive status	3.9	19 Schedule 11.1	Incorrect inactive status for 11 ICPs.	Still existing
Losing trader must provide final information - standard switch	4.3	5 of schedule 11.3	Some incorrect CS file content. Four late CS files.	Still existing
Retailers must use same reading - standard switch	4.4	(1) and 6A Schedule 11.3	One transfer RR was not supported by two validated actual reads. Three switch event readings were recorded with an incorrect read type.	Cleared
Non-half hour switch event meter reading - standard switch	4.5	6(2) and (3) Schedule 11.3	19 RRs meeting the requirements of Clause 6(2) and (3) Schedule 11.3 were invalidly rejected.	Cleared
Losing trader must provide final information - switch move	4.10	11 of schedule 11.3	Some incorrect CS file content. 165 late switch move CS files.	Still existing

Subject	Section	Clause	Non-compliance	Status
Gaining trader changes to switch meter reading - switch move	4.11	12 Schedule 11.3	One switch move RR was not supported by two validated actual reads. One RR file was accepted but the reads were not updated. Six switch event readings were recorded with an incorrect read type.	Still existing
Losing trader provision of information - gaining trader switch	4.13	15 Schedule 11.3	One late HH AN file.	Cleared
Withdrawal of switch requests	4.15	17 & 18 of schedule 11.3	27 switch withdrawals sent later than two months of the event date. One switch withdrawal was sent in error.	Still existing
Metering information	4.16	21 Schedule 11.3	Some incorrect CS file switch event readings.	Still existing
Electricity conveyed & notification by embedded generators	6.1	10.13	While a meter was bridged, energy was not metered and quantified according to the code. For three ICPs with generation, energy was not quantified according to the code.	Cleared
Interrogate meters once	6.8	7(1) and (2) Schedule 15.2	Best endeavours not demonstrated for ICPs not interrogated at least once during the period of supply	Still existing
NHH meters interrogated annually	6.9	8(1) and (2) Schedule 15.2	4 ICPs not read and exceptional circumstances were not present.	Still existing
NHH meters 90% read rate	6.10	(1) and (2) Schedule 15.2	The best endeavours requirement was not met for six ICPs unread for four months.	Still existing
Identification of readings	9.1	3(3) Schedule 15.2	Three readings incorrectly labelled.	Still existing
Calculation of ICP days	11.2	15.6	ICP days incorrect for two ICPs where backdated switches out had occurred.	Cleared

Subject	Section	Clause	Non-compliance	Status
HHR aggregates information provision to the reconciliation manager	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Still existing
Creation of submission information	12.2	15.4	For three ICPs with generation, energy was not metered and quantified according to the code. Eight ICPs with consumption while inactive did not have status corrections processed. Four stopped meters did not have corrections processed to estimate consumption during the stopped period.	Still existing
Accuracy of submission information	12.7	15.12	Eight corrections for consumption while inactive, and six corrections for stopped or faulty meters were not processed. For three ICPs with generation, energy was not metered and quantified according to the code. For one read change, the accepted read was not recorded and used for submission.	Still existing
Forward estimate process	12.12	6 Schedule 15.3	The accuracy threshold was not met for October 2017 for R3 and R7.	Cleared
Historical estimate reporting to RM	13.3	10 of Schedule 15.3	Historic estimate thresholds were not met for one revision.	Cleared

Subject	Section	Clause	Recommendation	Remedial Action
MEP nominations	3.4		Monitor rejected MEP nominations, and take action to reissue as required.	Cleared
Unmetered load	3.7		Check for changes to distributor unmetered load details. If changes are identified, confirm the correct details and update the trader unmetered load details as required.	Cleared
Interrogate meters once	6.8		Develop reporting to measure ICPs not reads during period of supply.	Cleared

2. OPERATIONAL INFRASTRUCTURE

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

Code reference

Clause 10.6, 11.2, 15.2

Code related audit information

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

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

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

Audit observation

The process to find and correct incorrect information was examined. The registry validation process was examined in detail in relation to the achievement of this requirement. The registry list as at 31/12/19 was examined to identify any registry discrepancies, and to confirm that all information was correct and not misleading.

Audit commentary

Updates to registry information are normally processed in EzyBusiness and then transferred to the registry with the next batch upload initiated by the switching team. Some updates such as MEP nomination corrections, and registry updates to statuses other than 1,4 and 2,0 are made directly using the registry interface.

Registry notification files are imported into EzyBusiness. Receipt of notification files triggers generation of a registry list file request for the affected ICPs. Once received, the registry list is imported into EzyBusiness to update the ICP information.

At the beginning of each week, a registry list is downloaded and imported into EzyBusiness, which updates fields also held on the registry. The registry status and EzyBusiness power status are held in separate fields. Discrepancies between these fields are reported each Monday, and exceptions are investigated to determine the correct status and update the registry and/or EzyBusiness.

A suite of data integrity reports is run overnight, including:

- identification of ICPs with null, blank or T99 series ANZSIC codes,
- ICPs with installation type B, including any ICPs which Bosco has received applications for but has not switched in,
- ICPs with metering category greater than 2 and less than 9, with RPS profile, and
- registry updates to active which are backdated more than 50 days.

The list file was analysed, and I found the following:

Issue	2020 Qty	2019 Qty	2018 Qty	2017 Qty	Comments
Active with blank ANZSIC	-	-	-	5	Compliant
Active with ANZSIC "T994" don't know	-	-	-	1	Compliant
Active status misalignment between EzyBusiness and the registry	-	-	-	2	Compliant
Status 1,8 -De-energised at pole fuse	-	-	-	2	Compliant
Shared unmetered load incorrect	-	-	-	1	Complaint. No shared unmetered load is supplied.
ICPs with Distributor unmetered load populated but retail unmetered load is blank and UML flag =N	-	-	1	1	Compliant
Incorrect profile & submission flag	-	-	-	1	Compliant

A small number of submission accuracy issues were identified during previous audits. Some are still existing, as follows:

- the 2018 audit found inactive consumption of 6,791 kWh and the 2019 audit found 2,605 kWh that hadn't been submitted; this was checked during this audit and these volumes have still not been submitted,
- four stopped or faulty meters did not have corrections processed in the 2018 audit; this was checked and found that these have not been corrected during the audit period, and
- the 2019 audit found that ICP 1000007265BP8E7 had generation installed but the energy was not quantified and reported according to the code, and ICPs 0000181478WAB2B and 1000007265BP8E7 also did not have energy measured in accordance with the code; this was checked and found that these have not been corrected during the audit period.

Non-compliance is recorded because information was not complete and accurate, and not corrected as soon as practicable.

Defective meters

No new examples of stopped or faulty meters were identified during the audit period.

Incorrect multipliers

No incorrect multipliers were identified during the audit period.

Bridged meters

No examples of bridged meters were identified during the audit period.

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.

Consumption while inactive

Consumption that has occurred while an ICP is inactive will only be reported if the status is corrected back to active. There is a monthly report that is expected to be checked and corrections processed. This process appears to be carried out intermittently resulting in some corrections not being processed. In addition to this EzyBusiness doesn't allow the operator to input an event date for a reconnection and auto populates the same day as the date of update. This then has to be manually corrected in the registry for each backdated event.

Bosco provided a list of 20 ICPs where consumption had been recorded after the ICP became inactive. Due to the report not being actioned as expected, 16 corrections had not been processed prior to the audit. This is recorded as non-compliance. A check of these during the audit found 11 had since been processed but the one correction for ICP 0167074458LC2DC had not been processed correctly resulting in the under submission of 153 kWh. This is recorded as non-compliance below and in **sections 12.2 and 12.7**.

Submission accuracy

An ICP switched away on 13/05/19 but EMS were not advised of this so continued to submit volumes for this ICP for April R1 and May R1 revisions. This was identified by the Mercury reconciliation team who advised EMS that the ICP had switched.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 10.6, 11.2, 15.2 From: 01-May-18 To: 31-Mar-19	Some corrections not conducted as soon as practicable. Correction for ICP 0167074458LC2DC incorrectly processed resulting in under submission of 153 kWh. Corrections from the two previous audits not carried out resulting in under submission of 6,791 kWh from the 2018 audit and 2,605 kWh from the 2019 audit. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	The controls overall are rated as moderate but are weak in relation to the processing of corrections. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
<p>We have implemented some system changes where users are now required to enter a reconnection date. The registry status will be updated to reflect this date and will not require manual correction for backdated events.</p> <p>ICP 0167074458LC2DC has been corrected and will be reflected through washup submissions.</p>	May 2020	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
<p>We have implemented some system changes where users are now required to enter a reconnection date. The registry status will be updated to reflect this date and will not require manual correction for backdated events.</p> <p>Process to be reviewed to determine why the ICPs with consumption while inactive were not picked up through BAU processing.</p>	<p>May 2020</p> <p>Sep 2020</p>	

2.2. Provision of information (Clause 15.35)

Code reference

Clause 15.35

Code related audit information

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

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

2.3. Data transmission (Clause 20 Schedule 15.2)

Code reference

Clause 20 Schedule 15.2

Code related audit information

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

Audit observation

NHH

NHH read data is transferred via SFTP by IntelliHUB, AMS and Wells.

To confirm the process, I traced a sample of reads for 15 NHH ICPs from the source files to EzyBusiness.

HHR

HHR processes are completed by EMS and were assessed as part of EMS' agent audit.

A copy of the HHR data is sent to Bosco via a zipped password protected email, and I viewed evidence of this.

Audit commentary

NHH

Nightly a system process polls for reading files from each MEP and agent and uploads them into EzyBusiness.

I traced a sample of two readings each for IntelliHUB, AMS and Wells from the source files to EzyBusiness. All readings matched.

HHR

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

A copy of the HHR information is sent to Bosco in a zipped password protected spreadsheet and used for billing.

Audit outcome

Compliant

2.4. Audit trails (Clause 21 Schedule 15.2)

Code reference

Clause 21 Schedule 15.2

Code related audit information

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

The audit trail must include details of information:

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

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

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

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

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

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

- *the operator identifier (clause 21(4)(c)).*

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 10.4

Code related audit information

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

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

Audit observation

I reviewed 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.

Audit outcome

Compliant

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

Code reference

Clause 10.7(2),(4),(5) and (6)

Code related audit information

The responsible reconciliation participant must, if requested, arrange access for the metering installation to the following parties:

- *the Authority*
- *an ATH*
- *an auditor*
- *an MEP*
- *a gaining metering equipment provider.*

The trader must use its best endeavours to provide access:

- *in accordance with any agreements in place*
- *in a manner and timeframe which is appropriate in the circumstances.*

If the trader has a consumer, the trader must obtain authorisation from the customer for access to the metering installation, otherwise it must arrange access to the metering installation.

The reconciliation participant must provide any necessary facilities, codes, keys or other means to enable the party to obtain access to the metering installation by the most practicable means.

Audit observation

I reviewed 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.

Audit outcome

Compliant

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

Code reference

Clause 10.35(1) & (2)

Code related audit information

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

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

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

Audit observation

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

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 11.15B

Code related audit information

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

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

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

Audit observation

I reviewed Bosco's current terms and conditions.

Audit commentary

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

Audit outcome

Compliant

2.9. Connection of an ICP (Clause 10.32)

Code reference

Clause 10.32

Code related audit information

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

- *accept responsibility for their obligations in Parts 10, 11 and 15 for the point of connection; and*
- *have an arrangement with an MEP to provide 1 or more metering installations for the point of connection.*

Audit observation

The new connection process was examined in detail to evaluate the strength of controls. The list file for 01/02/19 to 31/12/19 and event detail report for 01/02/19 to 31/12/19 were analysed to confirm the process is compliant and controls are functioning as expected.

Audit commentary

HHR New Connections

There have been no HHR new connections during the audit period and none are expected. All requests for HHR new connections are referred to Mercury.

NHH New Connections

Bosco will only accept new connections from existing customers; therefore, the volume of new connections is expected to be small. There were no new connections during the audit period.

When the new connection process is used, the following information is still valid.

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. Once the application is received, Bosco contacts the network to request creation of an ICP.

Bosco claims ICPs 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 to confirm the ICP is energised, the ICP is updated to active status in EzyBusiness and the registry.

Audit outcome

Compliant

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

Code reference

Clause 10.33(1)

Code related audit information

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

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

Audit observation

No new connections were conducted during the audit period.

Audit commentary

No new connections were conducted during the audit period.

Audit outcome

Compliant

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

Code reference

Clause 10.33A(1)

Code related audit information

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

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

Audit observation

The new connection and reconnection processes were examined in detail to evaluate the strength of controls.

The audit compliance report as at 14/01/20 and the event detail report for 01/02/19 to 31/12/19 were analysed to confirm process compliance and that controls are functioning as expected.

Audit commentary

All ICPs recorded as active with metering installed have an MEP recorded.

New Connections

The new connection process ensures the MEP is nominated. Bosco did not conduct any new connections during the audit period.

Reconnected ICPs

The audit compliance report confirmed that all 251 reconnected ICPs had certified metering installations.

Bridged meters

Bosco confirmed that no ICPs were bridged to reconnect during the audit period. I checked all recertified metering installations where the expiry date remained the same and did not identify any that were related to a disconnected ICP.

Audit outcome

Compliant

2.12. Arrangements for line function services (Clause 11.16)

Code reference

Clause 11.16

Code related audit information

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

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

Audit observation

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

Audit commentary

Bosco has an arrangement in place for all the networks they trade on.

Audit outcome

Compliant

2.13. Arrangements for metering equipment provision (Clause 10.36)

Code reference

Clause 10.36

Code related audit information

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

Audit observation

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

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.

No new MEPs were added during the audit period.

Audit outcome

Compliant

3. MAINTAINING REGISTRY INFORMATION

3.1. Obtaining ICP identifiers (Clause 11.3)

Code reference

Clause 11.3

Code related audit information

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

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

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

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

Audit observation

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

Audit commentary

This requirement is well managed and understood by Bosco. The process is detailed in **section 2.9** above.

No new connections were conducted within the audit period.

Audit outcome

Compliant

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

Code reference

Clause 11.7(2)

Code related audit information

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

Audit observation

The new connection process was examined in detail. The registry list as at 20/01/20 and event detail report for 01/02/19 to 31/12/19 were analysed to evaluate registry updates for new connections. This clause links directly to **section 3.5** below, which assesses the timeliness of registry updates.

Audit commentary

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

No new connections were conducted during the audit period.

Audit outcome

Compliant

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

Code reference

Clause 10 Schedule 11.1

Code related audit information

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

Audit observation

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

- the 15 latest (or all late) status updates for each status type,
- the 15 latest MEP nominations, and
- the 15 latest trader updates.

The list file was examined to identify any active ICPs with no MEP recorded, or with meter category nine recorded and the UML flag set to “N”. There were no examples found.

Audit commentary

The event detail report was examined to confirm whether the registry is updated within five business days when information referred to in clause 9 of schedule 11.1 changes. Overall, the timeliness of status updates has not improved since the 2019 audit.

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Status updates						
Change to active – Reconnections	2018	330	275	55	6.7	83.3%
	2019	150	133	17	4	89%
	2020	251	207	44	11.55	82.5%

Event	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to inactive	2018	204	153	51	47.4	75%
	2019	119	107	12	33.7	90%
	2020	60	48	12	9.4	80%
Trader updates						
All trader updates excluding new connections and switches in	2019	226	184	42	28.4	81%
	2020	21	19	2	108.38	90.48%

Reconnections

Reconnections are processed once paperwork is received confirming that the ICP has been reconnected. As discussed in **section 2.1**, separate EzyBusiness fields record the registry and EzyBusiness status, and these fields are compared, and discrepancies are resolved weekly.

The status update is normally processed in EzyBusiness and then transferred to the registry, but may be updated directly in the registry, particularly where a status is being corrected. EzyBusiness sends status updates to the registry when the next batch upload process is initiated by the switching team.

There were 251 status changes to active during the audit period, and 207 (82.5%) of these were processed on time. I checked 16 updates over 20 business days and found they were caused by:

- 13 were due to the reconnection notification not being processed in “customer enquiries”, which is where the registry is updated from; these were identified by the “consumption on inactive” reporting,
- ICP 0000591590TE5FD is still being investigated, it is inactive in Bosco’s database but was manually changed to active in the registry, and
- ICP 1000004828BPDF3 was recorded as disconnected during the Edgecombe floods of 2017, but it was discovered that it had been reconnected without Bosco’s knowledge.

Consumption on inactive ICPs is only identified and investigated where at least 50 kWh of inactive consumption is recorded. Where consumption over the threshold is identified a system alert is created, and staff investigate to determine whether the consumption is genuine and update the ICP status as required. I saw evidence that this process was operating during the audit.

Disconnections

Disconnections are processed once contractor paperwork confirming that the ICP has been disconnected is received. As discussed in **section 2.1**, separate EzyBusiness fields record the registry and EzyBusiness status, and these fields are compared, and discrepancies are resolved weekly.

Status updates to 1,4 are normally processed in EzyBusiness and then held for five business days before being sent to the registry overnight. Status updates to other disconnected statuses are normally processed directly on the registry.

48 (80%) of the 60 inactive status updates were processed on time. 12 updates were late, and one of those was more than 30 business days late. All late updates were checked and found to be caused by:

- one example where the status update was “held” for five business days, and
- delays in receiving paperwork and confirming the correct disconnection date for 11 examples.

ICPs are only updated to “ready for decommissioning” status on advice from the network. 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.

Seven of the 12 late updates to inactive were changes to the “ready for decommissioning” reason. These were all at the same address and were due to late notification from the field.

Trader Events updates

MEP nominations are usually processed manually on the registry. Files are produced from EzyBusiness for bulk smart meter roll outs. There were no late MEP nominations during the audit period.

19 (90.5%) of the 21 trader updates made were within five business days of the event date. The two late events were both more than 1,000 business days after the event date and both were due to incorrect event dates.

There were no late MEP nominations.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: Clause 10 of schedule 11.1 From: 01-Feb-19 To: 31-Dec-19	Registry not updated within 5 business days of the event. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	The controls are rated as moderate as controls will mitigate risk most of the time, but there is room for errors to occur. The audit risk rating is low as the number of ICPs affected is small.
Actions taken to resolve the issue	
Completion date	Remedial action status

<p>The registry update process has been changed to send status updates every 2 day instead five days.</p> <p>We have implemented some system changes where users are now required to enter a reconnection date. The registry status will be updated to reflect this date.</p> <p>The status for 0000591590TE5FD has now been corrected.</p>	May 2020	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
<p>The registry update process has been changed to send status updates every 2 day instead five days.</p> <p>We have implemented some system changes where users are now required to enter a reconnection date. The registry status will be updated to reflect this date.</p>	May 2020	

3.4. Trader responsibility for an ICP (Clause 11.18)

Code reference

Clause 11.18

Code related audit information

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

A trader ceases to be responsible for an ICP if:

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

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

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

Audit observation

Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process was discussed and the registry list as at 31/12/19 was examined to confirm whether all active ICPs have an MEP recorded.

ICP Decommissioning

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

Audit commentary

Retailers Responsibility to Nominate and Record MEP in the Registry

The new connection process is discussed in detail in **sections 2.9** and **3.5**. Bosco nominate the MEP at the same time as taking the ICP to the “inactive - new connection in progress” status. No new connections were conducted and there were no nomination rejections.

Review of the registry list confirmed that all active metered ICPs have an MEP recorded. The new connection process ensures the MEP is nominated.

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.

A sample of seven decommissioned ICPs were checked, all had a meter reading taken at the time of disconnection.

Audit outcome

Compliant

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

Code reference

Clause 9 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

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

The registry list as at 31/12/19, meter installation details report, and event detail report for 01/02/19 to 31/12/19 were analysed to confirm process compliance and that controls are functioning as expected.

Audit commentary

The table shows a high level of compliance, with full compliance for the previous audit period. No new connections were conducted during the current audit period.

NHH new connections are managed in an excel WIP file where all jobs issued are tracked.

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	2018	26	25	1	1.5	96.2%
	2019	16	16	-	2	100%
	2020	0	N/A	N/A	N/A	N/A

Audit outcome

Compliant

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

Code reference

Clause 9 (1(k) of Schedule 11.1

Code related audit information

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

Audit observation

The process to capture and manage ANZSIC codes was examined.

The registry list as at 14/01/20 was reviewed to check ANZSIC codes. To confirm the validity of the ANZSIC codes, I checked a diverse sample of 58 active ICPs across 13 different ANZSIC codes.

Audit commentary

ANZSIC codes are captured when the customer signs up. ICPs with null, blank or T99 series ANZSIC codes are identified and corrected as part of Bosco's daily data integrity query process described in **section 2.1**.

Analysis of the registry list found all ICPs had a valid ANZSIC code. ANZSIC codes for a sample of 58 ICPs were reviewed. I found that 54 had correct ANZSIC codes assigned and four did not:

ICP	ANZSIC code	ANZSIC code description	Finding from streetview
0000005048TC305	C16	Printing	Residential

ICP	ANZSIC code	ANZSIC code description	Finding from streetview
0014042070LC91A	N72	N72 - Administrative Services	Restaurant
0186248857LC6AE	G42	G42 - Other Store-Based Retailing	Park
0238987043LC0AB	S95	S95 - Personal and Other Services	Residential

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.6 With: Clause 9 (1(k) of Schedule 11.1 From: 01-Feb-19 To: 26-Mar-20	At least four ICPs had incorrect ANZSIC codes assigned. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as they are sufficient to ensure that most ANZSIC codes are recorded correctly. The impact is low. Most ANZSIC codes were found to be correct and there is no impact on settlement.		
Actions taken to resolve the issue		Completion date	Remedial action status
Three of the Four ICPs have been corrected. The remaining one is under investigation as customer classification is different to street view.		July 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We believe our current process is working well to keep errors to a minimum.		N/A	

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

Code reference

Clause 9(1)(f) of Schedule 11.1

Code related audit information

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

- the code ENG - if the load is profiled through an engineering profile in accordance with profile class 2.1 (clause 9(1)(f)(i)); or
- the daily average kWh of unmetered load at the ICP - in all other cases (clause 9(1)(f)(ii)).

Audit observation

The process to manage unmetered load was examined. The list file as at 31/12/19 was examined to identify any ICPs where:

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

Audit commentary

Bosco does not supply any ICPs with unmetered load.

Audit outcome

Not applicable

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

Code reference

Clause 17 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

The connection and reconnection processes were examined. The event detail report for 01/02/19 to 31/12/19 was analysed. Findings on the timeliness of active status updates are recorded in **sections 3.3** and **3.5**.

The list file as at 31/12/19 was analysed and found no ICPs at "new connection in progress" status.

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

I checked the accuracy of reconnection updates for a sample of ten ICPs.

Audit commentary

EzyBusiness 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.

No new connections were conducted during the audit period.

A typical sample of ten reconnections were checked which confirmed that the correct status and date had been applied.

Some late status changes to active are recorded as non-compliance in **section 3.3**.

Audit outcome

Compliant

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

Code reference

Clause 19 Schedule 11.1

Code related audit information

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

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

Audit observation

The disconnection process was discussed. The event detail report for 01/02/19 to 31/12/19 was analysed to identify all disconnections during the period.

A typical sample of at least five ICPs at each inactive status (or all ICPs if less than five were available) were checked using the typical characteristics methodology.

Findings on the timeliness of inactive status updates are recorded in **section 3.3**.

Audit commentary

The status of “Inactive” is only used once a Bosco approved contractor has confirmed that the ICP has been disconnected.

108 updates to inactive statuses occurred during the audit period. I checked a sample of 10 updates and confirmed that the correct statuses and dates were applied.

Bosco provided a list of 20 ICPs with consumption recorded during a period with “inactive” status, indicating the “inactive” status was incorrect.

Some late status updates to “inactive” are recorded as non-compliance in **section 3.3**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.9 With: Clause 19 Schedule 11.1 From: 01-Feb-19 To: 31-Dec-19	Incorrect “inactive” status for 20 ICPs. Potential impact: Medium Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement.</p> <p>The impact on settlement and participants is minor; therefore, the audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
The statuses have been corrected for all 20 ICPs.		Completed	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Process to be reviewed to determine why the ICPs with consumption while inactive were not picked up through BAU processing.		Sept 2020	

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

Code reference

Clause 15 Schedule 11.1

Code related audit information

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

Audit observation

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

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

Audit commentary

Bosco takes all pending new connections to the "new connection in progress" status.

Analysis of the registry list found two ICPs at "ready" status for two years or more, and no ICPs at "new" status for two years or more. I checked the ICPs at "ready" status and found:

- the customers decided not to go ahead with the new connections for 0000008099TE81E, and
- 0000008506TED22 appears to have Bosco assigned as the proposed trader in error; there is no record of a new connection application for this ICP.

Bosco confirmed that they have not received any requests for information on ICPs at "new" or "ready" status for more than 24 months during the audit period.

Audit outcome

Compliant

4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

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

Code reference

Clause 2 Schedule 11.3

Code related audit information

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

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

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

Audit observation

The switch gain process was examined to determine when Bosco deem all conditions to be met. I checked whether there were any backdated switches, indicating the two business day threshold may not have been met.

Audit commentary

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.

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

There were no backdated NT files sent.

Audit outcome

Compliant

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

Code reference

Clauses 3 and 4 Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

An event detail report for 01/02/19 to 31/12/19 was reviewed to identify AN files issued by Bosco during the audit period, and:

- a sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied, and
- assess compliance with the requirement to meet the setting of event dates requirement.

The switch breach report was examined for the audit period.

Audit commentary

The selection of the AN response code is determined by logic that has been inbuilt into EzyBusiness. The sample checked had the correct AN codes applied.

The event detail report was reviewed for all 314 transfer ANs to assess compliance with the setting of event dates requirements.

- 302 of 314 had a proposed event date within five business days of the NT receipt date; and
- all had proposed event dates within ten business days of the NT receipt date.

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

Audit outcome

Compliant

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

Code reference

Clause 5 Schedule 11.3

Code related audit information

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

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

Audit observation

An event detail report for 01/02/19 to 31/12/19 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 ten files. The content checked included:

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

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

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

Audit commentary

CS timeliness

CS file timeliness is managed using the switch breach report.

The switch breach history report did not contain any late transfer CS files.

CS content

The Registry Functional Specification v22.21 states that average daily consumption within the CS file should be the average kWh per day for the last read period.

Bosco's estimated daily kWh used to be calculated based on the daily average consumption over a period of at least 60 days between two actual readings. While this was not technically consumption for the last read to read period, it provided a reasonable indication of the average daily consumption. Bosco now calculates between the last two actual reads, in accordance with the function specification. Analysis estimated daily kWh on the event detail report identified:

Count of transfer CS files	Estimated daily kWh
Negative	-
Zero	8
More than 200 kWh	2

I checked all ten examples above. One ICP should have had 12 kWh per day not zero. The others were all correctly calculated.

The CS file content was checked for accuracy and found the following issues:

1. ICP 0006981940LC15F had a switch date of 26/08/19 and an estimate was supplied by Bosco with the last actual read date recorded as 12/08/19. The system has a "meter reads" tab and a "smart reads" tab. The "smart reads" tab contains daily register reads; the "meter reads" tab contains reads used for billing, which are a subset of those on the "smart reads" tab. For this ICP there was a reading available for midnight on 25/08/19 which could have been used as the switch event meter reading.
2. ICP 0029282195LCD9A had an actual read recorded as an estimate.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.3 With: Clause 5 of schedule 11.3 From: 01-Feb-19 To: 31-Dec-19	One incorrect average daily consumption. Readings from “smart reads” tab not used as switch event meter readings. One ICP had an actual read recorded as an estimate. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
One incorrect average daily consumption. We are looking into what caused the incorrect daily consumption to ensure this does not happen again.		Dec 2020	Identified
Readings from “smart reads” tab not used as switch event meter readings. Switch Analysts now use the read available in the smart read tab.		Completed	
One ICP had an actual read recorded as an estimate. This was caused by a system error which we are looking into.		Dec 2020	
Preventative actions taken to ensure no further issues will occur		Completion date	
Switch Analysts now use the read available in the smart read tab. We are working on a fix to ensure switch reads have the correct read type recorded.		Completed Dec 2020	

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

Code reference

Clause 6(1) and 6A Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

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

The event detail report for 01/02/19 to 31/12/19 was analysed to identify all read change requests and acknowledgements during the audit period. All RR files issued by Bosco, and ten AC files issued by Bosco were checked (including five acceptances and five rejections).

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

The switch breach report was reviewed to identify late RR and AC files.

Audit commentary

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

Bosco did not issue any RR files for transfer switches.

Bosco issued 17 AC files for transfer switches. 10 were accepted and seven were rejected. A sample of five AC rejections and five acceptances were checked. The rejections were valid, and in all cases EzyBusiness reflected the correct reading.

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

The switch breach report recorded no late RR or AC files for transfer switches.

Audit outcome

Compliant

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

Code reference

Clause 6(2) and (3) Schedule 11.3

Code related audit information

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

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

Audit observation

The event detail report for the period from 01/02/19 to 31/12/19 was reviewed to identify all read change requests and acknowledgements where clause 6(2) and (3) of schedule 11.3 applied.

Audit commentary

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

I identified six RR files issued to Bosco within five business days of CS completion where the NT specified a HHR profile and where Bosco rejected the RR. In all cases, Bosco had provided an actual read in the CS file from AMI metering and the RR file was one kWh different to the actual read. I confirmed the actual reads in the CS files were correct.

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

Audit outcome

Compliant

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

Code reference

Clause 7 Schedule 11.3

Code related audit information

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

Audit observation

I confirmed with 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.

Audit outcome

Compliant

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

Code reference

Clause 9 Schedule 11.3

Code related audit information

The switch move process applies where a gaining trader has an arrangement with a customer or embedded generator to trade electricity at an ICP using non half-hour metering or an unmetered ICP, or

to assume responsibility for such an ICP, and no other trader has an agreement to trade electricity at that ICP, this is referred to as a switch move and the following provisions apply:

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

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

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

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

Audit observation

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

Audit commentary

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.

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

I checked a sample of ten switch move NTs and found they were sent within two business days of two business days of pre-conditions being cleared, and the correct switch type was selected.

Audit outcome

Compliant

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

Code reference

Clause 10(1) Schedule 11.3

Code related audit information

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

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

- 10(1)(c) request that the switch be withdrawn in accordance with clause 17.

Audit observation

An event detail report for 01/02/19 to 31/12/19 was reviewed to identify AN files issued by Bosco during the audit period, and:

- a sample of two ANs per response code were reviewed to determine whether the codes had been correctly applied; and
- assess compliance with the requirement to meet the setting of event dates requirement.

The switch breach report was examined for the audit period.

Audit commentary

The selection of the AN response code is determined by logic that has been inbuilt into EzyBusiness. The sample checked found all were correct.

The event detail report was reviewed for all 1,619 switch move ANs to assess compliance with the setting of event dates requirements:

- all had proposed event dates within ten business days of NT receipt, and
- no AN proposed event dates were before the gaining trader's proposed event date.

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

Audit outcome

Compliant

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

Code reference

Clause 10(2) Schedule 11.3

Code related audit information

If the losing trader determines a different date, the losing trader must also complete the switch by providing to the registry manager as described in subclause (1)(a):

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

Audit observation

An event detail report for 01/02/19 to 31/12/19 was reviewed to identify AN files issued by Bosco during the audit period, and assess compliance with the requirement to meet the setting of event dates requirement.

Audit commentary

Analysis found all 1,619 switch move ANs had a valid switch response code and compliant proposed event dates. No ANs had proposed event dates earlier than the gaining trader's proposed date.

Audit outcome

Compliant

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

Code reference

Clause 11 Schedule 11.3

Code related audit information

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

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

Audit observation

An event detail report for 01/02/19 to 31/12/19 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 files. The content checked included:

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

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

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

Audit commentary

CS timeliness

CS file timeliness is managed using the switch breach report.

The switch breach history report contained 29 late switch move CS files. All were checked and were due to relying on the switch breach report, which is incorrect. The process has changed now, and the correct number of days is being used. There has only been one late file since July 2019 when the change was made.

CS content

The Registry Functional Specification v22.21 states that average daily consumption within the CS file should be the average kWh per day for the last read period.

Bosco's estimated daily kWh is calculated based on the daily average consumption over a period of at least 60 days between two actual readings. While this is not technically consumption for the last read to read period, it provides a reasonable indication of the average daily consumption. Analysis estimated daily kWh on the event detail report identified:

Count of switch move CS files	Estimated daily kWh
Negative	5
Zero	115

More than 200 kWh	3
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I checked ten with zero consumption and all of the negative and high consumption examples. All of the zeros were correct and the correct read to read logic is being used. The ICPs with negative consumption and high consumption were all incorrect. The ICPs with high consumption are as follows.

ICP	Average daily consumption
0212190461LCB38	1217
0823838220LCA82	5924
1001120214LC205	388

The CS file content was checked for accuracy and found the following issues:

1. estimated daily kWh did not reflect daily average consumption for the last read to read period for one ICP,
2. two ICPs had estimated switch event meter readings but there were actual smart reads for the switch event date present and these should have been used, and
3. one ICP had the reading recorded as an estimate but it was an actual.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.10 With: Clause 11 of schedule 11.3 From: 01-Feb-19 To: 31-Dec-19	Some incorrect CS file content. 29 late switch move CS files. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status

<p>Some incorrect CS file content. We are looking into what caused the incorrect daily consumption to ensure this does not happen again. Switch Analysts now use the reads available in the smart read tab. We are working on a system fix to ensure switch reads have the correct read type recorded.</p> <p>29 late switch move CS files. The switch breach report was reviewed in July19 and since this time, there has been only 1 late file.</p>	Dec 2020	Identified
	Jul19	
Preventative actions taken to ensure no further issues will occur	Completion date	
<p>Some incorrect CS file content. We are looking into what caused the incorrect daily consumption to ensure this does not happen again. Switch Analysts now use the reads available in the smart read tab. We are working on a system fix to ensure switch reads have the correct read type recorded.</p> <p>29 late switch move CS files. The new process to manage CS timeliness has been reviewed and has proven successful with only 1 late file since implementation.</p>	<p>Dec 2020</p> <p>Jul19</p>	

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

Code reference

Clause 12 Schedule 11.3

Code related audit information

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

- *if the switch meter reading established by the gaining trader differs by less than 200 kWh from that provided by the losing trader, both traders must use the switch event meter reading provided by the gaining trader (clause 12(2)(a)); or*
- *if the switch event meter reading provided by the losing trader differs by 200 kWh or more from a value established by the gaining trader, the gaining trader may dispute the switch meter reading. In this case, the gaining trader, within 4 calendar months of the actual event date, must provide to the losing trader a changed validated meter reading or a permanent estimate supported by two validated meter readings and the losing trader must either (clause 12(2)(b) and clause 12(3)):*
 - *advise the gaining trader if it does not accept the switch event meter reading and the losing trader and the gaining trader must resolve the dispute in accordance with the disputes procedure in clause 15.29 (with all necessary amendments) (clause 12(3)(a)); or*
 - *if the losing trader notifies its acceptance or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader (clause 12(3)(b)).*

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

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

Audit observation

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

The event detail report for 01/02/19 to 31/12/19 was analysed to identify all read change requests and acknowledgements during the audit period. A sample of ten RR files issued by Bosco (including all rejected files), and ten AC files issued by Bosco were checked (including five acceptances and five rejections).

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

The switch breach report was reviewed to identify late RR and AC files.

Audit commentary

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

Bosco issued five RR files for switch moves and they were all accepted. Two of the five did not have a record of how the reading was calculated. The audit trail is contained in email folders, but I recommend the details of the calculations are included in the customer notes to they can be easily retrieved. The ICPs are 0001420353UNFE6 and 0853354358LC763.

Bosco issued 94 AC files for switch moves. 21 were rejected. A sample of ten AC rejections and five acceptances were checked. One RR file was rejected and should have been accepted because the Bosco read was an estimate and the RR contained an actual from AMI within five business days.

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

The switch breach report recorded no late RR or AC files for switch moves.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.11 With: Clause 12 Schedule 11.3 From: 01-Feb-19 To: 31-Dec-19	Two RRs without confirmation of how the reads were calculated. One RR file was rejected and should not have been. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are rated as moderate, because Bosco is aware of the requirement for RRs to be supported by at least two validated readings.</p> <p>The impact is assessed to be low, because a small number of ICPs are affected and there is only a minor impact on reconciliation.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
These have occurred due to human error. We have since reviewed our processes and have provided further training to staff.		Completed	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
These have occurred due to human error. We have since reviewed our processes and have provided further training to staff.		Completed	

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

Code reference

Clause 13 Schedule 11.3

Code related audit information

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

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

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

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

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

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

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

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

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

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

Audit observation

An event detail report for 01/02/19 to 31/12/19 was reviewed to identify all HH switch gains during the period.

Audit commentary

No HH switches were requested by Bosco during the audit period.

Audit outcome

Not applicable

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

Code reference

Clause 15 Schedule 11.3

Code related audit information

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

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

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

Audit observation

An event detail report for 01/02/19 to 31/12/19 was reviewed to identify all HH switch losses during the period.

Audit commentary

One HH switch loss occurred during the audit period, and the correct AN response code was applied. The AN file was issued within three business days.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 11.3

Code related audit information

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

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

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

16(b)- carry out an interrogation and, no later than 5 business days after the metering installation is electrically disconnected or removed, advise the losing trader of the results and metering component numbers for each data channel in the metering installation.

Audit observation

An event detail report for 01/02/19 to 31/12/19 was reviewed to identify all HH switch gains during the period.

Audit commentary

No HH switches were completed by Bosco during the audit period.

Audit outcome

Not applicable

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

Code reference

Clauses 17 and 18 Schedule 11.3

Code related audit information

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

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

- *for each ICP, the trader withdrawing the switch request must provide the registry manager with (clause 18(c)):*
 - o *the participant identifier of the trader making the withdrawal request (clause 18(c)(i)); and*
 - o *the withdrawal advisory code published by the Authority. (clause 18(c)(ii))*
- *within five business days after receiving notice from the registry manager of a switch, the trader receiving the withdrawal must advise the registry manager that the switch withdrawal request is accepted or rejected. A switch withdrawal request must not become effective until accepted by the trader who received the withdrawal (clause 18(d))*
- *on receipt of a rejection notice from the registry manager, in accordance with clause 18(d), a trader may re-submit the switch withdrawal request for an ICP in accordance with clause 18(c). All switch withdrawal requests must be resolved within 10 business days after the date of the initial switch withdrawal request (clause 18(e))*
- *if the trader requests that a switch request be withdrawn, and the resolution of that switch withdrawal request results in the switch proceeding, within 2 business days after receiving notice from the registry manager in accordance with clause 22(b), the losing trader must comply with clauses 3,5,10 and 11 (whichever is appropriate) and the gaining trader must comply with clause 16 (clause 18(f)).*

Audit observation

An event detail report for 01/02/19 to 31/12/19 was reviewed to:

- identify all switch withdrawal requests issued by Bosco, and the content of a sample of at least two ICPs from the event detail report for each withdrawal code were checked using the typical sampling methodology, including 13 withdrawal requests rejected by other traders,
- identify all switch withdrawal acknowledgements issued by Bosco - a sample of ten rejections were checked, and
- confirm timeliness of switch requests, as this is not currently being identified in the switch breach report.

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

Audit commentary

Any switch withdrawal requested or needing to be responded to is notified to the switching team via tasks, or because of an issue identified by the switching team with a switch in progress. All switch withdrawals are processed through EzyBusiness and in addition to this an email is sent with the withdrawal details to the other trader. Analysis of the switch withdrawal codes confirmed all were correctly coded.

One of the 167 NWs was issued more than 60 days after the event date. The code was WP for wrong premises, and I note that this issue often does not become apparent for an extended period after a switch completes.

29 (21.8%) of the 133 AWs issued by Bosco were rejections. I reviewed a sample of ten rejections by Bosco, and confirmed they were rejected based the information available at the time the response was issued.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.15 With: Clauses 17 & 18 of schedule 11.3 From: 01-Feb-19 To: 31-Dec-19	One switch withdrawal sent later than two months of the event date. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Strong Breach risk rating: 1
Audit risk rating	Rationale for audit risk rating
Low	I have rated the controls as strong because they mitigate risk to an acceptable level. The audit risk rating is low as the volume of backdated switch withdrawals is low.
Actions taken to resolve the issue	
Completion date	Remedial action status

This late switch withdrawal was for “Wrong Premise” and was necessary for correct customer billing. Full compliance is difficult to achieve when dealing with wrong premises as these are often not identified within 2 months of the switch and also require investigation.	N/A	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
We will continue with our strong controls for switch withdrawals.	N/A	

4.16. Metering information (Clause 21 Schedule 11.3)

Code reference

Clause 21 Schedule 11.3

Code related audit information

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

21(a)- the trader who carries out the interrogation, switch event meter reading must ensure that the interrogation is as accurate as possible, or that the switch event meter reading is fair and reasonable.

21(b) and (c) - the cost of every interrogation or switch event meter reading carried out in accordance with clauses 5(b) or 11(b) or (c) must be met by the losing trader. The costs in every other case must be met by the gaining trader.

Audit observation

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

Audit commentary

The reads applied in switching files were examined in **section 4.3** for standard switches, **section 4.10** for switch moves, and **sections 4.4** and **4.11** for read changes. The meter readings used in the switching process are validated meter readings or permanent estimates.

As discussed in **sections 4.3** and **4.10**, some estimates were sent when validated AMI readings were available. This is recorded as non-compliance below.

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.16 With: Clause 21 Schedule 11.3 From: 01-Feb-19 To: 31-Dec-19	Some incorrect CS file switch event readings. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	I have rated the controls as weak as they are not sufficient to ensure that all CS content is consistently correct. The impact is assessed to be low, a small number of CS files with incorrect readings were identified.		
Actions taken to resolve the issue		Completion date	Remedial action status
Switch Analysts now use the reads available in the smart read tab to ensure for the most accurate switch reading.		Complete	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Switch Analysts now use the reads available in the smart read tab to ensure for the most accurate switch reading.		Complete	

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

Code reference

Clause 11.15AA to 11.15AB

Code related audit information

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

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

11.15AB(4)(a)- making a counter offer to the customer; or

11.15AB(4)(b)- offering an enticement to the customer.

Audit observation

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

Win back processes were examined to determine whether they are compliant.

I checked the event detail report from 01/02/19 to 31/12/19 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.

Review of the event detail report identified no NWs issued with a CX withdrawal reason code prior to completion of the switch.

Audit outcome

Compliant

5. MAINTENANCE OF UNMETERED LOAD

5.1. Maintaining shared unmetered load (Clause 11.14)

Code reference

Clause 11.14

Code related audit information

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

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

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

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

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

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

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

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

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

Audit observation

The process to identify and monitor unmetered load was discussed. The registry list for 31/12/19 was reviewed to identify all shared unmetered load.

Audit commentary

Bosco does not supply any ICPs with shared unmetered load and does not intend to.

Processes are in place to prevent ICPs with shared unmetered load from switching in, and to monitor existing ICPs for addition of unmetered load.

Audit outcome

Compliant

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

Code reference

Clause 10.14 (2)(b)

Code related audit information

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

Audit observation

The registry list for 31/12/19 was reviewed to identify all unmetered load over 3,000 kWh per annum.

Audit commentary

No ICPs with load over 3,000 kWh per annum are supplied.

Audit outcome

Compliant

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

Code reference

Clause 10.14 (5)

Code related audit information

If the unmetered load limit is exceeded the retailer must:

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

Audit observation

The registry list for 31/12/19 was reviewed to identify all unmetered load over 3,000 kWh per annum.

Audit commentary

No ICPs with load over 3,000 kWh per annum are supplied.

Audit outcome

Compliant

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

Code reference

Clause 11 Schedule 15.3, Clause 15.37B

Code related audit information

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

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

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

Audit observation

The registry list for 31/12/19 was reviewed to identify all DUML ICPs.

Audit commentary

Bosco's DUML ICP 0000003946TEC6B switched out early in the audit period, on 18/06/18. No DUML ICPs are supplied.

Audit outcome

Compliant

6. GATHERING RAW METER DATA

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

Code reference

Clause 10.13, Clause 10.24 and Clause 15.13

Code related audit information

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

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

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

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

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

Audit observation

The registry list for 01/02/19 to 14/01/20 and meter installation details report were examined to determine whether any ICPs with generation were supplied during the audit period, and to check metering information. Processes for distributed generation were reviewed.

Audit commentary

Metering installations installed

Review of the registry list confirmed that all active metered ICPs have an MEP recorded and at least one meter channel.

Bosco's new connection process includes a check that metering is installed before electrical connection occurs.

No ICPs have submission information determined by subtraction.

Distributed generation

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. There have been no ICPs with generation traded by Bosco during the audit period.

The ICPs found in the last audit with generation installed but not submitted were checked and found that this has not been corrected. This is recorded as non-compliance in **sections 2.1** and **12.7**.

Bridged meters

No examples of bridged meters were identified during the audit period.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

The participant responsible for the metering installation must:

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

Audit observation

The NSP table was reviewed to confirm whether Bosco is responsible for any GIPs.

Audit commentary

Bosco is not responsible for any GIPs; compliance was not assessed.

Audit outcome

Not applicable

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

Code reference

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

Code related audit information

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

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

Audit observation

A registry list with history was reviewed for 01/02/19 to 31/12/19 to determine the profiles assigned by Bosco, and whether they require control device certification.

Audit commentary

Examination of the list file found that Bosco has only used the RPS and HHR profiles for active ICPs, and control devices are not used for reconciliation purposes.

Audit outcome

Compliant

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

Code reference

Clause 10.43(2) and (3)

Code related audit information

If a participant becomes aware of an event or circumstance that lead it to believe a metering installation could be inaccurate, defective, or not fit for purpose they must:

- *advise the MEP*
- *include in the advice all relevant details.*

Audit observation

Processes relating to defective metering were examined.

Bosco was asked for examples of defective meters identified during the audit period.

Audit commentary

Defective meters are typically identified through the meter reading validation process, or from information provided by the meter reader, the MEP, or the customer. Upon identifying a possible defective meter, a field services job is raised to investigate and resolve the defect.

No defective meters or bridged meters were identified during the audit period. I also checked the four ICPs with stopped or faulty meters from the 2018 audit to confirm whether corrections had been conducted. No corrections were conducted for any of the four. This is recorded as non-compliance in **sections 2.1** and **12.7**.

Because EMS' audit was completed more than seven months ago, I checked defective HHR meters identified since their May 2019 audit and noted that corrections had been processed where necessary. HHR corrections are discussed in **section 8.2**.

Audit outcome

Compliant

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

Code reference

Clause 2 Schedule 15.2

Code related audit information

Only a certified reconciliation participant may collect raw meter data, unless only the MEP can interrogate the meter, or the MEP has an arrangement which prevents the reconciliation participant from electronically interrogating the meter:

2(2) - The reconciliation participant must collect raw meter data used to determine volume information from the services interface or the metering installation or from the MEP.

2(3) - The reconciliation participant must ensure the interrogation cycle is such that it does not exceed the maximum interrogation cycle in the registry.

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

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

- a) *ensure the system is to within +/- 5 seconds of NZST or NZDST*

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

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

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

Audit observation

Bosco's agents and MEPs are responsible for the collection of HHR and AMI data. Collection of data and clock synchronisation were reviewed as part of their agent and MEP audits.

Audit commentary

All information used to determine volume information is collected from the services interface or the metering installation by an agent, or the MEP. Because EMS' audit was completed more than seven months ago, I confirmed that there were no issues with HHR data collection processes or clock synchronisation since their May 2019 audits.

Compliance with this clause has been demonstrated by Bosco's agents and MEPs as part of their agent audits. IntelliHUB and AMS provide emailed information on clock synchronisation events, I viewed examples from both MEPs. Bosco confirmed that they had not been informed of any clock synchronisation events that required action during the audit period.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

All validated meter readings must be derived from meter readings.

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

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

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

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

Audit observation

The data collection process was examined.

Processes to provide meter condition information were reviewed as part of Wells' agent audit. Bosco's processes to manage meter condition information were reviewed.

Processes for customer and photo reads were reviewed.

Audit commentary

Wells readings

Wells' data collection processes were reviewed as part of their agent audit in June 2019 and found to be compliant. I confirmed with Wells that there were no changes to their processes or systems since their May 2019 audit that could have a negative impact on Bosco's compliance.

Wells provide information on meter condition along with the daily reads, which is imported into EzyBusiness. As part of the meter reading and billing validations Bosco checks any instances where the meter or register number does not match. Field services jobs are raised to resolve issues where required. No phase failure issues have been reported by Wells during the audit period.

Wells also provide a monthly summary report containing all tampering events.

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

Customer and photo readings

Bosco accepts customer readings, particularly where access is an issue. A check read conducted by a meter reader is scheduled every nine months, and the customer readings are validated against these readings. I reviewed four examples of ICPs where the customer provided readings and found that in all cases the readings were appropriately validated against meter reader readings. Where the reads are not validated, they are treated as unvalidated readings.

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

Audit outcome

Compliant

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

Code reference

Clause 6 Schedule 15.2

Code related audit information

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

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

Audit observation

The process of the application of meter readings was examined.

Audit commentary

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

All AMI systems have a clock synchronisation function, which ensures correct time-stamping. Manual readings taken by Wells are applied correctly.

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

The content of CS and RR files was examined in **sections 4.3, 4.4, 4.10 and 4.11**. In three cases, the switch event reading applied in the CS file was not the actual reading on the switch event date. As discussed in **sections 4.3 and 4.11**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.7 With: Clause 6 Schedule 15.2 From: 01-Feb-19 To: 31-Dec-19	For three CS files issued by Bosco, switch event reads did not reflect the actual reading or best estimate of an actual reading on the event date. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating:2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Switch Analysts now use the reads available in the smart read tab to ensure for the most accurate switch reading.		Complete	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Switch Analysts now use the reads available in the smart read tab to ensure for the most accurate switch reading.		Complete	

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

Code reference

Clause 7(1) and (2) Schedule 15.2

Code related audit information

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

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

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

Audit observation

The process to manage missed reads was examined, including review of reports used in the process and individual unread ICPs. The six unread ICPs supplied for more than 40 days were checked to confirm if exceptional circumstances exist.

Audit commentary

Missed reads are followed up:

- as part of the pre-billing validation checks described in **section 9.5**, ICPs with estimated readings for three months or more are investigated to determine the reason they are unread, and action is taken to try to obtain a read,
- another report is run at 12 months and further attempts are made to ensure any outstanding readings are obtained, and
- ICPs are automatically moved to manual meter reading routes if AMI readings are not received for five consecutive days, and once three consecutive days of AMI readings are received, the ICP is moved back to an AMI meter reading round; I saw evidence that Bosco advises the MEP when AMI meters are not communicating, so that the communication issues can be resolved and this advice is provided manually.

Bosco normally imports one read per month on the scheduled read date. Where a read is not available on the scheduled read date, an estimate is entered on the read date and billed. Any actual reads received for nearby dates are recorded in EzyBusiness but remain unposted. Unposted reads are not used for reconciliation, billing or read attainment reporting. This practice affects Bosco's read attainment results, submission accuracy and historic estimate proportions. To ensure good customer service, Bosco will only reverse and rebill if the read will result in a material difference to the customer's invoice.

The report provided for ICPs unread during the period of supply contained 47 ICPs. The list was examined and identified three ICPs that shouldn't have been included. Two ICPs of these were unmetered loads (before all unmetered ICPs switched away) and ICP 0951415567LC11F was a withdrawn switch. With these excluded the average period of supply was 21 days. The six ICPs that were supplied for greater than 40 days were examined and found:

- in four instances actual reads were available but CSRs had incorrectly reversed the actual read and inserted a customer read as a permanent estimate when switching away but in all instances the reads were the same as the actuals, so this had no impact on submission, Bosco are reviewing the CSR processes,
- ICP 0131956418LC2D7 was a backdated switch in so the no read process was unable to be completed before it switched away, and
- exceptional circumstances were proven for ICP 0570337688LCBA2.

For the 38 ICPs with a short period of supply the no read process has not been completed and therefore exceptional circumstances cannot be proven for these.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 01-Mar-19 To: 31-Dec-19	Best endeavours not demonstrated for 38 ICPs with a short period of supply. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, because they are sufficient to ensure that the majority of ICPs will receive at least one actual read during the period of supply. The impact is assessed as low because four and 12 month read attainment rates are high.		
Actions taken to resolve the issue		Completion date	Remedial action status
We note that read attainment can be very difficult when period of supply is short. We will look at reducing our 4 months no read reporting, to 3 months to pick up more ICPs that may have a short supply period.		Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We note that read attainment can be very difficult when period of supply is short. We will look at reducing our 4 months no read reporting, to 3 months to pick up more ICPs that may have a short supply period.		Dec 2020	

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

Code reference

Clause 8(1) and (2) Schedule 15.2

Code related audit information

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

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

Audit observation

The meter reading process was examined. Monthly reports for February 2019 to December 2019 were provided and reviewed to determine whether they met the requirements of clauses 8 and 9 of schedule 15.2.

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

Audit commentary

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > 12 months	NSPs <100% read	ICPs unread for 12 months	Overall percentage read
Feb 19	27	3	20-	99.85%
Mar 19	27	-	-	100.00%
Apr 19	27	-	-	100.00%
May 19	28	-	-	100.00%
Jun 19	29	-	-	100.00%
Jul 19	28	-	-	100.00%
Aug 19	27	-	-	100.00%
Sept 19	26	3	19	99.88%
Oct 19	26	3	19	99.88%
Nov 19	26	-	-	100.00%
Dec 19	27	-	-	100.00%

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

Six NSPs which did not have 100% read attainment in the previous 12 months were identified. I checked the details for the 20 relevant ICPs and found:

- for 15 inactive ICPs the meter has been removed and the notes indicate that these ICPs are all ready to decommission. I recommend that this be confirmed and if correct, the status be updated accordingly.

Description	Recommendation	Audited party comment	Remedial action
Interrogate meters once	Update inactive ICPs where notes indicate the ICP is ready for decommissioning.	The 15 ICPs will be investigated and statuses updated accordingly.	Investigating

- for the remaining five ICPs there have been many meter reader visits but no other communication therefore exceptional circumstances could not be proven.

I reviewed meter reading reports for February 2019 to December 2019 and confirmed that they met the meter reading frequency report content requirements.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.9 With: Clause 8(1) and (2) Schedule 15.2 From: 01-Feb-19 To: 31-Dec-19	5 ICPs not read and exceptional circumstances were not present. Potential impact: Low Actual impact: None Audit history: Twice Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The audit risk rating is low as this affects only five ICPs of which only three have an active status.		
Actions taken to resolve the issue		Completion date	Remedial action status
Further training and comms will be provided to our contact centre staff to be used when contacting 'No reads' customers to ensure best endeavours are met.		Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Further training and comms will be provided to our contact centre staff to be used when contacting 'No reads' customers to ensure best endeavours are met.		Dec 2020	

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

Code reference

Clause 9(1) and (2) Schedule 15.2

Code related audit information

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

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

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

Audit observation

The meter reading process was examined. Monthly reports for February 2019 to December 2019 were reviewed.

A sample of ten ICPs not read in the previous four months at NSPs where less than 90% of ICPs were read were reviewed to determine whether exceptional circumstances existed and if 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
Feb 19	27	2	38	98.84%
Mar 19	27	2	31	98.83%
Apr 19	27	2	31	98.83%
May 19	28	1	25	99.45%
Jun 19	29	1	29	99.47%
Jul 19	28	2	28	98.26%
Aug 19	27	1	35	98.19%
Sept 19	26	2	43	98.29%
Oct 19	26	1	41	99.89%
Nov 19	26	1	68	98.39%
Dec 19	27	1	69	98.46%

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

Three NSPs did not have 90% read attainment within four months over the previous 12-month period. All were NSPs with only a small number of ICPs present and therefore one unread ICP will cause the threshold to be missed. I checked the details for the three relevant ICPs and found all related to access issues, but exceptional circumstances could not be proven in these instances. Multiple attempts to contact had been made but using email only. Phone calls may have been made but these were not logged in the customer's account. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.10 With: Clause 9(1) and (2) Schedule 15.2 From: 01-Mar-19 To: 31-Dec-19	The best endeavours requirement was not met for three ICPs unread for four months. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, because they are sufficient to ensure that most ICPs supplied for four months will receive at least one actual read. The risk is rated as low, a small number of ICPs were affected, and overall read attainment rates are high with close to 100% of ICPs read every four months.		
Actions taken to resolve the issue		Completion date	Remedial action status
Further training and comms will be provided to our contact centre staff to be used when contacting 'No reads' customers to ensure best endeavours are met.		Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Further training and comms will be provided to our contact centre staff to be used when contacting 'No reads' customers to ensure best endeavours are met.		Dec 2020	

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

Code reference

Clause 10 Schedule 15.2

Code related audit information

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

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

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

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

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

Audit observation

NHH data is collected by MEPs and Wells. The data interrogation log requirements were reviewed as part of their agent and MEP audits.

Audit commentary

Compliance with this clause has been demonstrated by Bosco's agents and MEPs as part of their own audits.

I confirmed with Wells that there were no changes to their processes or systems since their May 2019 audit that could have a negative impact on Bosco's compliance.

Audit outcome

Compliant

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

Code reference

Clause 11(1) Schedule 15.2

Code related audit information

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

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

Audit observation

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

Audit commentary

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

Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to HHR data collection processes since their 2019 audit.

Audit outcome

Compliant

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

Code reference

Clause 11(2) Schedule 15.2

Code related audit information

The following information is collected during each interrogation:

11(2)(a) - the unique identifier of the data storage device

11(2)(b) - the time from the data storage device at the commencement of the download unless the time is within specification and the interrogation log automatically records the time of interrogation

11(2)(c) - the metering information, which represents the quantity of electricity conveyed at the point of connection, including the date and time stamp or index marker for each half hour period. This may be limited to the metering information accumulated since the last interrogation

11(2)(d) - the event log, which may be limited to the events information accumulated since the last interrogation

11(2)(e) - an interrogation log generated by the interrogation software to record details of all interrogations.

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

Audit observation

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

Audit commentary

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

Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to HHR data collection processes since their 2019 audit.

Audit outcome

Compliant

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

Code reference

Clause 11(3) Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

Audit observation

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

Audit commentary

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

Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to HHR data collection processes since their 2019 audit.

Audit outcome

Compliant

7. STORING RAW METER DATA

7.1. Trading period duration (Clause 13 Schedule 15.2)

Code reference

Clause 13 Schedule 15.2

Code related audit information

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

Audit observation

Trading period duration was reviewed as part of the MEP audits, and EMS' agent audit.

Audit commentary

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

Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to processes since their 2019 audit.

Audit outcome

Compliant

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

Code reference

Clause 18 Schedule 15.2

Code related audit information

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

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

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

Audit observation

NHH

Processes to archive and store raw meter data were reviewed. Raw meter data from 2015 was reviewed to ensure that it is retained.

HHR

HHR data is archived and stored by EMS, and their processes were reviewed as part of their agent audit.

Audit commentary

NHH

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 meter data from 2015, confirming that meter reading data is retained for at least 48 months.

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, and special readings are provided in Wells' read files.

HHR

Compliance with this clause was demonstrated by EMS as part of their agent audit.

Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to processes since their 2019 audit.

Audit outcome

Compliant

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

Code reference

Clause 21(5) Schedule 15.2

Code related audit information

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

Audit observation

Processes to record non-metering information were discussed.

Audit commentary

Bosco does not deal with any non-metering information; compliance was not assessed.

Audit outcome

Not applicable

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

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

Code reference

Clause 19(1) Schedule 15.2

Code related audit information

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

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

19(1)(b) - replacement of the original meter reading by another meter reading (even if the replacement meter reading may be at a different date)

19(1)(c) - if the original meter reading cannot be confirmed or replaced by a meter reading from another interrogation, then an estimated reading is substituted, and the estimated reading is marked as an estimate and it is subsequently replaced in accordance with clause 4(2).

Audit observation

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

Audit commentary

Reading errors

Where errors are detected during validation of NHH meter readings, a check reading is performed, or AMI data for surrounding days is reviewed. If an original meter reading cannot be confirmed, an estimated reading is used. These estimates are calculated using data from a period with a quantity and profile similar to the period requiring estimation. The estimated reading is labelled as an estimate.

Transposed meters

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

Audit outcome

Compliant

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

Code reference

Clause 19(2) Schedule 15.2

Code related audit information

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

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

19(2)(b) - in the absence of any check meter or data storage device, data may be substituted from another period if the total of all substituted intervals matches the total consumption

recorded on the meter, if available, and the pattern of consumption is considered materially similar to the period in error.

Audit observation

EMS are responsible for correction of HHR metering information, and this is reviewed as part of their agent audits.

Audit commentary

Compliance with this clause has been demonstrated by EMS as part of their agent audit. EMS confirmed that no corrections to HHR data were made during the audit period.

Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to HHR data correction processes since their 2019 audit.

Audit outcome

Compliant

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

Code reference

Clause 19(3) Schedule 15.2

Code related audit information

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

Audit observation

Error and loss compensation arrangements were discussed.

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.

Audit outcome

Compliant

8.4. Correction of HHR and NHH raw meter data (Clause 19(4) and (5) Schedule 15.2)

Code reference

Clause 19(4) and (5) Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

Audit observation

Corrections are discussed in **sections 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

Compliance with this clause has been demonstrated by EMS as part of their agent audit and there have been no changes to their processes since the May 2019 audit. EMS confirmed that no corrections to HHR data were made during the audit period.

I reviewed the audit trail information for NHH data corrections, 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.

Audit outcome

Compliant

9. ESTIMATING AND VALIDATING VOLUME INFORMATION

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

Code reference

Clause 3(3) Schedule 15.2

Code related audit information

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

Audit observation

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

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

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

Audit commentary

As recorded in **sections 4.3 and 4.10**, two meter readings had the incorrect read type recorded.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 9.1 With: Clause 3(3) Schedule 15.2 From: 01-Mar-19 To: 31-Dec-19	Two readings incorrectly labelled. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
This is caused by a system error. We are working on a fix to ensure switch reads have the correct read type recorded.		Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

We are working on a system fix to ensure switch reads have the correct read type recorded.	Dec 2020	
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9.2. Derivation of volume information (Clause 3(4) Schedule 15.2)

Code reference

Clause 3(4) Schedule 15.2

Code related audit information

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

3(4)(a) - validated meter readings

3(4)(b) - estimated readings

3(4)(c) - permanent estimates.

Audit observation

A sample of submission data was reviewed in **sections 11** and **12**, to confirm that volume was based on readings as required.

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 3(5) Schedule 15.2

Code related audit information

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

Audit observation

A sample of submission data was reviewed in **sections 11** and **12**, to confirm that volume was based on readings as required.

NHH and HHR data is collected by MEPs and agents. Compliance was assessed as part of their MEP and agent audits.

Audit commentary

The MEPs and agents retain the raw, unrounded data. Compliance with this clause has been demonstrated by the MEPs and agents as part of their audits. Because the Wells and EMS agent reports were more than seven months old on the audit due date, I confirmed that there had been no changes to agent systems or processes which could affect Bosco's compliance.

AMI data provided by MEPs is truncated on import, readings are recorded to zero decimal places. The MEP retains the raw, unrounded data. This has previously been recorded as compliant because the MEP has the unrounded raw meter data, however a recent review of the wording of this clause has led to a revised interpretation, which is that rounding should not occur until volume information is created. Rounding occurs prior to the creation of volume information, therefore non-compliance exists.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 9.3 With: Clause 3(5) of schedule 15.2 From: 01-Feb-19 To: 31-Dec-19	Raw meter data is rounded upon receipt and not when volume information is created. Potential impact: Low Actual impact: Low Audit history: None Controls: None Breach risk rating: 5		
Audit risk rating	Rationale for audit risk rating		
Low	There are no controls to prevent rounding of raw meter data, the system is designed to round as soon as the data arrives. There is very little impact because no metered consumption information is “missing”, therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
The breach risk rating & controls seem extreme considering there is virtually no impact on the market and up until now we have been deemed compliant in this area. We will investigate how we can become compliant in this area though it may not be feasible as significant system changes will be required.		Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
We will investigate how we can become compliant in this area though it may not be feasible.		Ongoing	

9.4. Half hour estimates (Clause 15 Schedule 15.2)

Code reference

Clause 15 Schedule 15.2

Code related audit information

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

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

Audit observation

EMS are responsible for estimation of HHR metering information, and this was reviewed as part of their agent audit.

Audit commentary

Compliance with this clause has been demonstrated by EMS as part of their agent audit. EMS confirmed that no HHR data was estimated during the audit period.

Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to HHR estimation processes since their 2019 audit.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 15.2

Code related audit information

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

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

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

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

16(2)(d) - confirmation that there is no obvious corruption of the data, including unexpected 0 values.

Audit observation

I reviewed and observed the NHH data validation process, including checking a sample of data validations, exception reports, and process documentation.

Audit commentary

Meter readings are imported into EzyBusiness automatically, and undergo meter read validation, then billing validation. Any reads that fail these validation processes are reported by the system and investigated by the billing team.

The read import validation confirms whether the file content is valid, and if there is a matching meter and register number open in EzyBusiness. If a read file fails any of these checks, the read file will not be imported, and an exception will be generated.

Reads contained within files that pass the initial check are imported and compared to the previous reading and historic consumption patterns. This process identifies high and negative readings which require investigation. EzyBusiness automatically processes meter rollovers.

Pre-billing validation includes further consumption checks, and identifies unread ICPs:

- **negative consumption** - any ICPs with negative consumption over 17 days are checked,
- **zero consumption** - any ICPs with zero consumption over 17 days are checked,
- **consumption over 100 kWh per day** – these are checked to confirm whether the high consumption is genuine,

- **high consumption for meter configuration, brand and ICP type** – these are checked to confirm whether the high consumption is genuine,
- **customer read ICPs with no check meter read received from the meter reader** - these are followed up to arrange a check read,
- **ICPs with estimated reads for more than three months** - these are investigated to determine why no read has been provided and action is taken,
- **ICPs where the meter reader notes indicate a different meter number** - these are followed up with the MEP if paperwork is not received within a month, and
- **ICP consumption = sum of consumption for connected registers** – any differences are investigated.

After passing pre-billing validation, reads are flagged as posted in the system, and are available to be used by the billing and reconciliation processes. A test billing run is generated to check all data required for billing is available, and then the readings are billed.

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

Audit outcome

Compliant

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

Code reference

Clause 17 Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

Audit observation

NHH

I reviewed and observed the AMI validation process, including checking a sample of data validations and process documentation.

HHR

HHR processes are completed by EMS and were assessed as part of EMS' agent audit. I reviewed Bosco's processes to review the HHR data following validation by EMS.

Audit commentary

NHH

Bosco receives AMI data from IntelliHUB 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 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 emailed meter event information from AMS and IntelliHUB. These metering events are reviewed and actioned, and I saw evidence of field services jobs raised as a result.

HHR

EMS’ HHR processes were reviewed as part of their agent audit and found to be compliant. Because EMS’ audit was completed more than seven months ago, I confirmed that there were no changes to HHR data correction processes since their 2019 audit.

Bosco also manually validates the HHR information they receive in Excel including reasonableness checks of consumption, demand, capacity, and power factor compared to the ICP’s history. Any issues are referred to EMS.

No data validity issues have been identified by Bosco during the audit period.

Audit outcome

Compliant

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

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

Code reference

Clause 13.136

Code related audit information

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

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

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

Bosco is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

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

Code reference

Clause 13.137

Code related audit information

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

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

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

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

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

Bosco is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

10.3. Loss adjustment of HHR metering information (Clause 13.138)

Code reference

Clause 13.138

Code related audit information

The generator must provide the information required by clauses 13.136 and 13.137, 13.138(1)(a)- adjusted for losses (if any) relative to the grid injection point or, for embedded generators the grid exit point, at which it offered the electricity 13.138(1)(b)- in the manner and form that the pricing manager stipulates 13.138(1)(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

The NSP table on the registry was reviewed.

Audit commentary

Bosco is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

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

Code reference

Clause 13.140

Code related audit information

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

Audit observation

The NSP table on the registry was reviewed.

Audit commentary

Bosco is not responsible for any NSPs. No information is provided to the pricing manager in accordance with this clause.

Audit outcome

Not applicable

11. PROVISION OF SUBMISSION INFORMATION FOR RECONCILIATION

11.1. Buying and selling notifications (Clause 15.3)

Code reference

Clause 15.3

Code related audit information

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

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

Audit observation

A registry list with history was reviewed for 01/02/19 to 14/01/20 to determine the profiles assigned by Bosco, and whether trading notifications were required.

Audit commentary

Examination of the list file found that Bosco has only used the RPS and HHR profiles for active ICPs, and trading notifications are not required.

Audit outcome

Compliant

11.2. Calculation of ICP days (Clause 15.6)

Code reference

Clause 15.6

Code related audit information

Each retailer and direct purchaser (excluding direct consumers) must deliver a report to the reconciliation manager detailing the number of ICP days for each NSP for each submission file of submission information in respect of:

15.6(1)(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period

15.6(1)(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.

The ICP days information must be calculated using the data contained in the retailer or direct purchaser's reconciliation system when it aggregates volume information for ICPs into submission information.

Audit observation

Bosco prepares and submits the NHH ICP days. 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 13 months of GR100 reports and investigated a diverse sample of ten NSP level ICP days differences, to determine why the difference had occurred and by checking the HHR ICP days for all ICPs for October 2019.

EMS prepares and submits HHR ICP days as Bosco's agent. The process was assessed as part of EMS' agent audit.

Audit commentary

The EMS agent audit records compliance for the calculation of HHR ICP days. Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to their ICP days processes since their 2019 audit.

The following table shows the ICP days difference between Bosco files and the RM return file (GR100) for all available revisions for 13 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
Aug 2018	-0.01%	-0.01%	0.00%	-0.01%	0.00%
Sept 2018	0.00%	0.01%	0.00%	0.00%	0.00%
Oct 2018	0.00%	-0.05%	-0.01%	0.01%	0.00%
Jan 2019	0.05%	-0.02%	0.00%	-0.03%	-
Feb 2019	0.06%	-0.02%	-0.02%	-0.02%	-
Mar 2019	0.02%	0.03%	-0.02%	0.00%	-
Apr 2019	0.02%	-0.02%	0.00%	-0.02%	-
May 2019	-0.06%	-0.05%	-0.02%	0.00%	-
Jun 2019	0.01%	0.00%	0.00%	-	-
Jul 2019	0.12%	-0.04%	0.00%	-	-
Aug 2019	0.05%	0.00%	-0.02%	-	-
Sept 2019	-0.01%	-0.02%	-0.03%	-	-
Oct 2019	-0.02%	-0.05%	-	-	-

I reviewed the NSP level differences and found most were resolved by revision 3. I reviewed five differences at revision three and seven and found:

- two were timing differences related to backdated switches, the timeliness of switching files is discussed in **section 4**, and
- three issues related to backdated events where the GR100 is reporting incorrectly

All were resolved by R14.

Audit outcome

Compliant

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

Code reference

Clause 15.7

Code related audit information

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

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

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

Audit observation

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

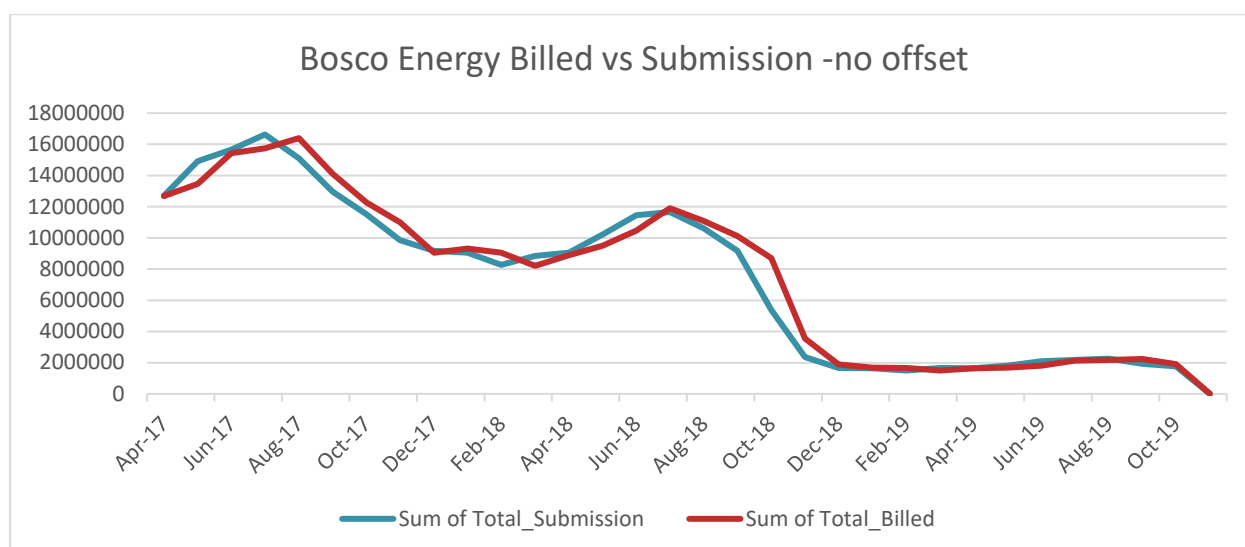
GR130 reports for January 2016 onwards were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

Audit commentary

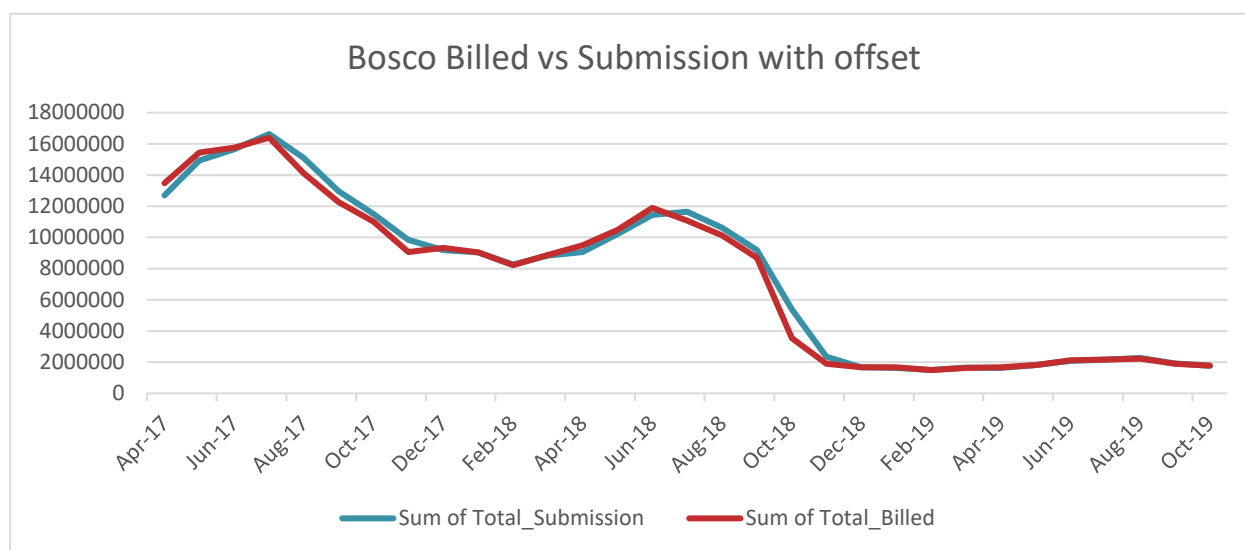
The process for calculating and submitting electricity supplied information was examined by checking individual invoices for a typical sample of five NSPs to ensure the billed amount equalled the figure in the ICP level file which forms the basis of the aggregate file sent to the RM. The file is correct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

I compared the billed data to the submitted data and offset the billed by a month to align with Bosco's billing cycle. This was not done in the 2019 audit. I have included both diagrams for reference.

Comparison between Submitted Volumes and Electricity Supplied with no offset:



Comparison between Submitted Volumes and Electricity Supplied with offset:



The chart below shows a comparison between submissions and electricity supplied information. At an aggregate level, billed data is 1.9% lower than submitted data for the year ended October 2019 and 2.5% lower than submitted for the two years ended October 2019. The migration of customers from Tiny Mighty to Mercury that occurred in October 2018 is reflected in the difference over a two year period. The average variance between billed and submitted for the months from December 2018 to October 2019 is 0.3%.

Audit outcome

Compliant

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

Code reference

Clause 15.8

Code related audit information

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

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

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

Audit observation

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

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 12 submissions.

The "ICP Missing" files were examined for all revisions for the audit period.

Audit commentary

Compliance with this clause has been demonstrated by EMS as part of their agent audit. Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to their HHR processes since their 2019 audit.

Bosco's HHR aggregates report contains submission information, not electricity supplied information as specified under clause 15.8. Although the reports Bosco produces are consistent with the Reconciliation Manager Functional Specification, this is recorded as technical non-compliance below.

I confirmed that the process for the calculation and aggregation of HHR data is correct, by matching HHR aggregates information with the HHR volumes data for revisions nine submissions. There were only small rounding differences between the volumes and aggregates.

The "ICP Missing" files were examined for all revisions for April 2019 to October 2019. ICP 0104636781LCF8F switched out on 13/05/19 but was submitted for in the April R1 and May R1 revisions. This was due to Bosco not advising EMS that the ICP had switched. This was identified by the Mercury reconciliation team who advised EMS that the ICP had switched. This is recorded as non-compliance in **sections 2.1** and **12.7**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 11.4 With: Clause 15.8 From: April 2019 To: March 2020	HHR aggregates file does not contain electricity supplied information. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1		
Actions taken to resolve the issue	Completion date		
Low	The issue relating to content of the aggregates file is an error in the code, Bosco is providing submission information as expected.		
Actions taken to resolve the issue	Completion date	Remedial action status	
Non-compliance disputed. Bosco is handling and presenting data as required by the Reconciliation Manager file specification.	N/A	Disputed	
Preventative actions taken to ensure no further issues will occur	Completion date		
This is an industry known issue which EA is aware off. Bosco will continue to prepare the aggregates file as required by the Reconciliation Manager file Specification.	N/A		

12. SUBMISSION COMPUTATION

12.1. Daylight saving adjustment (Clause 15.36)

Code reference

Clause 15.36

Code related audit information

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

Audit observation

EMS are responsible for daylight savings adjustments, and this is reviewed as part of their agent audit.

Audit commentary

Compliance with this clause has been demonstrated by EMS as part of their agent audit. The “trading period run on” technique is used for daylight saving adjustment.

Because EMS’ audit was completed more than seven months ago, I confirmed that there were no changes to their HHR processes since their 2019 audit.

Audit outcome

Compliant

12.2. Creation of submission information (Clause 15.4)

Code reference

Clause 15.4

Code related audit information

By 1600 hours on the 4th business day of each reconciliation period, the reconciliation participant must deliver submission information to the reconciliation manager for all NSPs for which the reconciliation participant is recorded in the registry as having traded electricity during the consumption period immediately before that reconciliation period (in accordance with Schedule 15.3).

By 1600 hours on the 13th business day of each reconciliation period, the reconciliation participant must deliver submission information to the reconciliation manager for all points of connection for which the reconciliation participant is recorded in the registry as having traded electricity during any consumption period being reconciled in accordance with clauses 15.27 and 15.28, and in respect of which it has obtained revised submission information (in accordance with Schedule 15.3).

Audit observation

HHR submissions are created by EMS, and their processes were reviewed as part of their agent audit.

A sample of submission data was checked, and correction processes were checked in **sections 8.1 and 8.2**.

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

Audit commentary

No breaches had been recorded for late provision of submission information. Data is reviewed prior to submission as discussed in **section 12.3**.

NHH

Bosco prepares NHH reconciliation submissions using reconciliation consumption generated by EzyBusiness. A sample of NHH ICPs were checked to make sure they are handled correctly, including vacant ICPs with consumption, disconnected ICPs with consumption and distributed generation. Bosco has no ICPs with unmetered load or distributed generation:

- an extreme case sample of the ten ICPs with the most vacant consumption (where the ICP became vacant during the audit period) were checked and found to have consumption reported correctly, and
- all 20 disconnected ICPs with consumption while disconnected were checked. Due to the report not being actioned as expected, 16 corrections had not been processed prior to the audit. A check of these during the audit found 11 had since been processed but the one correction for ICP 0167074458LC2DC had not been processed correctly resulting in the under submission of 153 kWh. This is recorded as non-compliance below and in **sections 2.1** and **12.7**.

Further information on the calculation of historic estimates is recorded in **section 12.11**, the correction process is documented in **section 2.1**, and aggregation of the AV080 report was found to be compliant in **section 12.3**.

HHR

Compliance with this clause has been demonstrated by EMS as part of their agent audit. Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to their HHR processes since their 2019 audit.

The AV090 and AV140 (half hour volumes and aggregates) submissions are discussed in **section 11.4**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.2 With: Clause 15.4 From: 01-Apr-19 To: 31-Dec-19	One ICP with consumption while inactive did not have status corrections processed and submission did not occur. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as moderate overall, as they are sufficient to ensure that most data is correctly reported. The audit risk rating is assessed to be low as the points of connection missing from submission for the inactive period are small in number.
Actions taken to resolve the issue	
Completion date	Remedial action status

ICP status has since been corrected and will be reflected in washup submissions.	May 2020	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Process to be reviewed to determine why the ICPs with consumption while inactive were not picked up through BAU processing.	Sept 2020	

12.3. Allocation of submission information (Clause 15.5)

Code reference

Clause 15.5

Code related audit information

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

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

Audit observation

HHR

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

All other submissions

The process to ensure that submissions are accurate were discussed and observed by a walkthrough, including review of reports used in the process.

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

Audit commentary

HHR

Compliance with this clause has been demonstrated by EMS as part of their agent audit. Because EMS' audit was completed more than seven months ago, I confirmed that there were no changes to their HHR processes since their 2019 audit.

All other submissions

Reconciliation submissions are generated and checked by Bosco, before being passed to the Mercury Energy Services team for further review. I walked through Bosco's review process, and noted that any anomalies identified are investigated by comparing to the average daily consumption and historic information:

- the 100 ICPs with the lowest volumes are reviewed,
- the 100 ICPs with the highest volumes are reviewed,

- for wash up submissions, ICP days changes between submissions are identified and reviewed, and a volume comparison to previous months is completed,
- GXP level comparison to the same period last year and previous month for initial submission; while 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, and
- 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.

Bosco submissions are then checked by Mercury Energy's energy services team using the submission checker and NZRM/ALLA file editor tools.

ICP days, NHH volumes, and "as billed" data are imported into the submission checker. The submission checker is used to create graphs and tables to compare the data, including review of historic consumption patterns, differences between revisions, and consistency checks between the reports. The results are reviewed by the energy analysts and approved in writing by the Pricing Operations and Energy Services Manager. In some cases, volumes may be queried with the Bosco team prior to approval.

NZRM/ALLA file editor compares volume, ICP days, and billed submissions to the NZRM balancing area data, to ensure trading notifications are open. Corrections are processed by the NZRM/ALLA file editor, and I confirmed that a full audit trail is created as part of this process. The most common corrections are:

- there is no NHH data for an expected aggregation factor combination, and zero records are inserted, and
- removal of zero consumption data if there is no open contract for the aggregation factor combination.

GR170 and AV080 files for nine revisions were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required.

The aggregation of the submission files was checked by conducting a walkthrough and checking Bosco's validation reporting.

There have been no upgrades from NHH to HHR, or downgrades from HHR to NHH during the audit period.

As detailed in **section 8.1**, 12 examples of vacant consumption not being submitted were found. This is recorded as non-compliance in **sections 2.1, 8.1 and 12.7**.

Audit outcome

Compliant

12.4. Grid owner volumes information (Clause 15.9)

Code reference

Clause 15.9

Code related audit information

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

- *submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period (clause 15.9(a))*

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

Audit observation

The NSP table on the registry and registry list were reviewed.

Audit commentary

Bosco is not responsible for any GIPs; compliance was not assessed.

Audit outcome

Not applicable

12.5. Provision of NSP submission information (Clause 15.10)

Code reference

Clause 15.10

Code related audit information

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

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

Audit observation

The registry list and NSP table were reviewed.

Audit commentary

Bosco is not a local or embedded network owner; compliance was not assessed.

Audit outcome

Not applicable

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

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

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

Audit observation

The registry list and NSP table were reviewed.

Audit commentary

Bosco is not a grid connected generator; compliance was not assessed.

Audit outcome

Not applicable

12.7. Accuracy of submission information (Clause 15.12)

Code reference

Clause 15.12

Code related audit information

If the reconciliation participant has submitted information and then subsequently obtained more accurate information, the participant must provide the most accurate information available to the reconciliation manager or participant, as the case may be, at the next available opportunity for submission (in accordance with clauses 15.20A, 15.27, and 15.28).

Audit observation

Alleged breaches during the audit period were reviewed to determine whether any reconciliation submissions were late. Corrections were reviewed in **section 8.1** and **8.2**.

Audit commentary

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

A small number of submission accuracy issues were identified during previous audits. Some are still existing, as follows:

- the 2018 audit found inactive consumption of 6,791 kWh and the 2019 audit found 2,605 kWh that hadn't been submitted, this was checked during this audit and these volumes have still not been submitted,
- four stopped or faulty meters did not have corrections processed in the 2018 audit, this was checked and found that these have not been corrected during the audit period, and
- the 2019 audit found that ICP 1000007265BP8E7 had generation installed but the energy was not quantified and reported according to the code, and ICPs 0000181478WAB2B and 1000007265BP8E7 also did not have energy measured in accordance with the code; this was checked and found that these have not been corrected during the audit period.

Non-compliance is recorded because information was not complete and accurate and not corrected as soon as practicable.

Defective meters

No examples of stopped or faulty meters were identified during the audit period.

Incorrect multipliers

No incorrect multipliers were identified during the audit period.

Bridged meters

No examples of bridged meters were identified during the audit period.

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.

Consumption while inactive

Consumption that has occurred while an ICP is inactive will only be reported if the status is corrected back to active. There is a monthly report that is expected to be checked and corrections processed. This process appears to be carried out intermittently resulting in some corrections not being processed. In addition to this EzyBusiness doesn't allow the operator to input an event date for a reconnection and auto populates the same day as the date of update. This then has to be manually corrected in the registry for each backdated event.

Bosco provided a list of 20 ICPs where consumption had been recorded after the ICP became inactive. Due to the report not being actioned as expected, 16 corrections had not been processed prior to the audit. This is recorded as non-compliance. A check of these during the audit found 11 had since been processed but the one correction for ICP 0167074458LC2DC had not been processed correctly resulting in the under submission of 153 kWh.

Submission accuracy

An ICP switched away on 13/05/19 but EMS were not advised of this so continued to submit volumes for this ICP for April R1 and May R1 revisions. This was identified by the Mercury reconciliation team who advised EMS that the ICP had switched.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 12.7 With: Clause 15.12 From: 01-May-18 To: 31-Dec-19	Submission occurred for one HHR ICP after it switched away. 16 corrections for consumption while inactive not carried out as BAU. Correction for ICP 0167074458LC2DC incorrectly processed resulting in under submission of 153 kWh Corrections from the two previous audits not carried out resulting in under submission of 6,791 kWh from the 2018 audit and 2,605 kWh from the 2019 audit. Potential impact: Medium Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls overall are rated as moderate but are weak in relation to the processing of corrections. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status

Submission occurred for one HHR ICP after it switched away: The ICP in question was switched to MEEN from EZYN 1/11/2019, this information was not passed on to EMS as they carry out the submission on behalf of EZYN. Mercury noticed it showing up in our ICPMISS reporting and informed EMS to get them to remove the offending ICP from their submission.	Jan 2020	Identified
16 corrections for consumption while inactive not carried out as BAU. ICP statuses have since been corrected and will be reflected in washup submissions.	Feb 2020	
Correction for ICP 0167074458LC2DC incorrectly processed resulting in under submission of 153 kWh This has since been corrected and will be reflected in washup submissions.	May 2020	
Preventative actions taken to ensure no further issues will occur	Completion date	
EZYN has only one HHR ICP which is submitted by EMS. We have changed our process to notify EMS as soon as a switch takes place. Process to be reviewed to determine why the ICPs with consumption while inactive were not picked up through BAU processing.	Feb 2020 Sep 2020	

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

Code reference

Clause 4 Schedule 15.2

Code related audit information

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

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

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

Audit observation

Three AV080 14-month revisions were reviewed to identify any forward estimate still existing. All NSPs with forward estimate remaining on any of the revisions were checked to determine the reasons for the forward estimate.

Audit commentary

Estimated reads are normally replaced with permanent estimate reads by 14 months. Before each 14-month wash up, a report is run from EzyBusiness to identify any ICP which still have forward estimate remaining. The ICPs with forward estimates are worked through and estimate readings are manually changed to permanent estimates.

Review of the 14-month revisions for August to September 2018 showed that all estimated readings had been replaced with permanent estimates with the exception of one NSP for September 2018. This was examined and found it related to four ICPs that were switched as part of the Tiny Mighty customer migration where the warning flag to change these estimates to permanent estimates was missed in this instance.

Audit outcome

Compliant

Non-compliance	Description		
Audit Ref: 12.8 With: Clause 4 of Schedule 15.2 From: Sep-18 r14	Four forward estimates were not replaced by revision 14 for September 2018. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as strong as the reporting has since been modified to capture all ICPs with FE remaining. The impact is low. Total forward estimate for the three months reviewed was 980 kWh.		
Actions taken to resolve the issue		Completion date	Remedial action status
We will investigate why these were missed to ensure this issue does not occur again.		Sep 20	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
We will investigate why these were missed to ensure this issue does not occur again.		Sep 20	

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

Code reference

Clause 2 Schedule 15.3

Code related audit information

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

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

Audit observation

Aggregation and content of reconciliation submissions was reviewed, and the registry list as at 31/12/19 was reviewed.

Audit commentary

Compliance with this clause was assessed:

- all ICPs with meter category 3 or higher have submission type HHR,
- no profiles requiring a certified control device are used,
- no loss or compensation arrangements are required, and
- aggregation of the AV080, AV110, AV090 and AV140 submissions are covered in **sections 13.2, 11.2, and 11.4** respectively.

Audit outcome

Compliant

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

Code reference

Clause 3 Schedule 15.3

Code related audit information

For each ICP that has a non-half hour metering installation, volume information derived from validated meter readings, estimated readings, or permanent estimates must be allocated to consumption periods using the following techniques to create historical estimates and forward estimates. (clause 3(1))

Each estimate that is a forward estimate or a historical estimate must clearly be identified as such. (clause 3(2))

If validated meter readings are not available for the purpose of clauses 4 and 5, permanent estimates may be used in place of validated meter readings. (clause 3(3))

Audit observation

Review of nine AV080 submissions, to confirm that historic estimates are included and identified.

Permanence of meter readings is reviewed in **section 12.8**. The methodology to create forward estimates is reviewed in **section 12.12**.

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 4 and 5 Schedule 15.3

Code related audit information

The methodology outlined in clause 4 of Schedule 15.3 must be used when preparing historic estimates of volume information for each ICP when the relevant seasonal adjustment shape is available.

If a seasonal adjustment shape is not available, the methodology for preparing an historical estimate of volume information for each ICP must be the same as in clause 4, except that the relevant quantities kWh_{Px} must be prorated as determined by the reconciliation participant using its own methodology or on a flat shape basis using the relevant number of days that are within the consumption period and within the period covered by kWh_{Px} .

Audit observation

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.

Audit commentary

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

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

Consumption while inactive will only be reported if the ICP status is corrected to active.

Test	Scenario	Test expectation	Result
a	ICP becomes Active part way through a month	Consumption is only calculated for the Active portion of the month.	Compliant
b	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
c	ICP become Inactive then Active again within a month.	Consumption is only calculated for the Active portion of the month.	Compliant

Test	Scenario	Test expectation	Result
d	ICP switches in part way through a month on an estimated switch reading	Consumption is calculated to include the 1st day of responsibility.	Compliant
e	ICP switches out part way through a month on an estimated switch reading	Consumption is calculated to include the last day of responsibility.	Compliant
f	ICP switches out then back in within a month	Consumption is calculated for each day of responsibility.	Has not occurred
g	Continuous ICP with a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
h	Continuous ICP without a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
i	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant
j	Unmetered load for a full month	Consumption is calculating based on daily unmetered kWh for full month.	Compliant
k	Unmetered load for a part month	Consumption is calculating based on daily unmetered kWh for active days of the month.	Compliant
l	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Compliant
m	ICP with a customer read during the month	Customer reads are not used to calculate historic estimate.	Compliant
n	ICP with a photo read during the month	Photo reads are not used to calculate historic estimate.	Has not occurred
o	ICP has a meter with a multiplier greater than 1	The multiplier is applied correctly	Compliant

Audit outcome

Compliant

12.12. Forward estimate process (Clause 6 Schedule 15.3)

Code reference

Clause 6 Schedule 15.3

Code related audit information

Forward estimates may be used only in respect of any period for which an historical estimate cannot be calculated.

The methodology used for calculating a forward estimate may be determined by the reconciliation participant, only if it ensures that the accuracy is within the percentage of error specified by the Authority.

Audit observation

The process to create forward estimates was reviewed.

Forward estimates were checked for accuracy by analysing the GR170 file for variances between revisions over the audit period.

Audit commentary

Forward estimate is calculated using two methods:

1. 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:
 - a. estimate based on available smart reads,
 - b. estimate based on the previous consumption period x seasonal scaling factor, or
 - c. estimate based on the daily average from the switch gain file.
2. 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 in relation to forward estimations. The table below shows the target was met for all balancing areas and revisions.

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

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total
Aug 2018	0	0	0	0	34
Sep 2018	0	0	0	0	33
Mar 2019	0	0	0	-	11
April 2019	0	0	0	-	11
May 2019	0	0	0	-	10
June 2019	0	0	-	-	10
July 2019	0	0	-	-	10
Aug 2019	0	0	-	-	10
Sep 2019	0	0	-	-	11
Oct 2019	0	-	-	-	10

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Aug 2018	1.41%	2.01%	1.98%	2.20%
Sep 2018	5.86%	7.26%	7.23%	7.23%
Mar 2019	-0.22%	0.05%	0.12%	
April 2019	-0.61%	-0.53%	-0.38%	
May 2019	-0.26%	-0.81%	-0.22%	
June 2019	-1.49%	-1.46%		
July 2019	-1.64%	-1.23%		
Aug 2019	-0.88%	-1.00%		
Sep 2019	4.84%	5.29%		
Oct 2019	1.42%			

Audit outcome

Compliant

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

Code reference

Clause 7 Schedule 15.3

Code related audit information

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

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

Audit observation

The event detail report for 01/02/19 to 14/01/20 was reviewed, to identify any ICPs which had a change of profile.

Audit commentary

Examination of the list file found that no profile changes occurred during the audit period.

Audit outcome

Compliant

13. SUBMISSION FORMAT AND TIMING

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

Code reference

Clause 8 Schedule 15.3

Code related audit information

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

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

Audit observation

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

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

Zeroing in the AV080 submission is discussed in **section 12.3** and was found to be compliant.

Audit commentary

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

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

Audit outcome

Compliant

13.2. Reporting resolution (Clause 9 Schedule 15.3)

Code reference

Clause 9 Schedule 15.3

Code related audit information

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

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

Audit observation

I reviewed the rounding of data on the AV080, AV090 and AV140 and reports as part of the aggregation checks.

Audit commentary

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

Review of 12 AV-090 half hour volumes reports confirmed that submission data is rounded to two decimal places

Review of 12 AV-140 half hour aggregates reports confirmed that submission data is rounded to two decimal places.

Audit outcome

Compliant

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

Code reference

Clause 10 Schedule 15.3

Code related audit information

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

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

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

Audit observation

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

I reviewed nine months of GR170 reports to determine whether historic estimate requirements were met.

Audit commentary

The quantity of historical estimates is contained in the submission file and is not a separate report. The proportion of HE in the revision files was checked for nine separate months. The table below shows that compliance has been achieved for all months.

The overall percentages of historic estimate are high.

Quantity of NSPs where revision targets were met.

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Aug 2018	-	-	65	65
Sep 2018	-	-	64	65
Mar 2019	-	29	-	29
April 2019	-	29	-	29
May 2019	-	30	-	30
June 2019	30	-	-	30
July 2019	30	-	-	30
Aug 2019	29	-	-	29
Sep 2019	27	-	-	27

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

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Aug 2018	-	-	100.00%
Sep 2018	-	-	100.00%
Mar 2019	-	99.73%	=
April 2019	-	99.77%	-
May 2019	-	99.58%	-
June 2019	99.35%	-	-

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
July 2019	99.45%	-	-
Aug 2019	98.33%	-	-
Sep 2019	98.66%	-	-

Audit outcome

Compliant

CONCLUSION

This audit is for the EZYN participant code only.

The audit found 19 non-compliance issues, down from 24 during the last audit. One recommendation is made.

Controls have improved in the registry and switching areas since the last audit. Some issues still remain, as follows:

- the disconnection process still has a 3-day delay before the registry is updated, these updates should occur as soon as notification arrives,
- the date of the last read in CS files is from “meter reads” table not “smart reads” table, because smart reads are not always used even though they are available, also, only meter reads (billable reads) are used as switch reads even when a smart read is available, and
- the RR process requires a better audit trail.

The main issue still to be resolved is the processing of historic corrections for submission purposes. There are still examples of stopped meters, consumption in inactive ICPs and generation volume where the corrections have not been processed. Whilst the consumption in question is low and the audit risk rating is low, the weak controls could allow for under submission of larger volumes. The Authority recommended specific focus on this area after the previous audit.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and contains a future risk rating score of 39, which results in an indicative audit frequency of 12 months. This is an improvement from a score of 52 in the previous audit, but some issues from the previous audit are still present. I have considered this result in conjunction with Bosco’s responses and I recommend a 15-month audit period.

PARTICIPANT RESPONSE

Bosco has made a number of improvements since the last audit and we are continually working on fixes and process improvements to clear our non-compliances.

We plan on utilising the Audit Compliance reports as a guide for identifying where we may have gaps in current processing and areas for improvement. This will assist in identifying errors in a timely manner to ensure all corrections are captured in our washup submissions.

In addition to the above, we have significant system changes planned for completion within the next 18 months which will improve our compliance in all areas.