ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT

For

GENESIS ENERGY LIMITED

Prepared by: Steve Woods and Tara Gannon

Date audit commenced: 14 August 2018

Date audit report completed: 12 September 2018

Audit report due date: 13 September 2018

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EXECUTIVE SUMMARY

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

This audit includes the GENE, GENH, and GEOL participant codes.

GEOL's ICPs were migrated from Orion to Gentrack in July 2018. Following the migration, the GEOL systems used are the same as GENE's. Over time it is expected that processes for the two codes will be more closely aligned.

The audit found 38 non-compliance issues and seven recommendations are made.

Improvements are evident in the following areas:

- submission related issues for GEOL are either resolved or in the process of being resolved
- switching compliance has improved
- meter reading attainment rates remain at a high level, and have improved for both GENE and GEOL.

The main issues to note from this audit are as follows:

- distributed unmetered load submissions are not correct for many databases and some were not audited
- monitoring of disconnected ICPs with consumption should be improved
- ANZSIC code accuracy requires improvement
- better reporting is required for bridged and faulty meters to monitor compliance and accuracy of processes
- submission is not occurring for some ICPs with distributed generation and processes need strengthening in this area.

The matters raised are shown in the tables below.

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 recommends an audit frequency of three months. I have considered this result in conjunction with the responses provided by Genesis and the fact that the overall risk rating has improved from 93 to 82. Genesis has demonstrated sound progress with improvements and I recommend an audit frequency of 12 months to provide enough time to complete the planned improvements.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Provision of information	2.1	15.2	Small number of registry discrepancies. Some late status updates. Some submission related areas where controls require strengthening to ensure compliance. Some corrections not conducted.	Moderate	Medium	4	Investigating
Electrical connection	2.11	10.33A	79 reconnections were not certified within five business days for GENE. 49 reconnections were not certified within five business days for GEOL. One GENE new connection not certified for two months after electrical connection. One GENH new connection certified two days later than the 5-day threshold.	Moderate	Low	2	Identified
Changes to registry information	3.3	10 of schedule 11.1	Some status updates were not processed within five business days of the event on the Registry.	Moderate	Low	2	Identified
Trader responsibility	3.4	11.18	5 incorrect MEP nominations.	Moderate	Low	2	Cleared

Provision of registry information	3.5	Clause 9 Schedule 11.1	Some late and incorrect status updates. Some late and incorrect MEP nominations.	Moderate	Medium	4	Investigating
ANZSIC codes	3.6	9(1)(k) of schedule 11.1	Some incorrect ANZSIC codes.	Moderate	Low	2	Identified
Unmetered load	3.7	Clause 9(1)(f) of Schedule 11.1	Incorrect unmetered details for 21 ICPs.	Strong	Low	1	Identified
Management of Active status	3.8	17 of schedule 11.1	One incorrect status update.	Moderate	Low	2	Investigating
Management of Inactive status	3.9	19 of schedule 11.1	Some incorrect inactive statuses.	Moderate	Medium	4	Identified
Change of MEP	3.11	10.22(1)(a)(i)	Backdated MEP changes.	Moderate	Low	2	Investigating
Switching	4.2	3 of schedule 11.3	Incorrect AN response codes for GEOL.	Strong	Low	1	Cleared
	4.3	5 of schedule 11.3	Incorrect average daily consumption for 1 GENE file and 9 GEOL files.	Moderate	Low	2	Investigating
	4.4	6(1) and 6A Schedule 11.3	13 late RR files for GEOL. 6 late RR files for GENE.	Strong	Low	1	Identified
	4.5	6(2) and (3) Schedule 11.3	3 GEOL RR files incorrectly rejected.	Strong	Low	1	Cleared
	4.8	10(1) of schedule 11.3	Incorrect AN response codes for GEOL.	Strong	Low	1	Cleared
	4.10	11 of schedule 11.3	Incorrect CS content for GEOL. 7 late CS files for GEOL. Incorrect CS file content for GENE. 189 late CS files for GENE.	Moderate	Low	2	Identified

	4.11	12 of schedule 11.3	19 late RR files for GEOL. 42 late RR files for GENE. 2 GEOL RR files incorrectly rejected.	Strong	Low	1	Identified
	4.12	14 of schedule 11.3	The NT was sent late for ICP 1000015708BP6E8.	Strong	Low	1	Cleared
Shared unmetered load	5.1	11.14	Incorrect shared unmetered load for 4 GEOL ICPs.	Strong	Low	1	Cleared
Unmetered threshold	5.2	10.14 (2)(b)	Unmetered load over 6,000 kWh per annum.	Weak	Low	3	Investigating
Unmetered threshold exceeded	5.3	10.14 (5)	Unmetered load over 6,000 kWh per annum and not resolved within the allowable timeframes.	Weak	Low	3	Investigating
Distributed unmetered load	5.4	11 Schedule 15.3	Distributed unmetered databases not accurate.	Weak	High	9	Investigating
Electricity conveyed	6.1	10.13 of part 10	**GENE** One meter was bridged during the audit period. While meters are bridged energy is not quantified in accordance with the code. 27 ICPs without DG quantified. **GEOL** 9 ICPs without DG quantified.	Moderate	Low	1	Identified
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	**GENE** One customer read was treated as validated, when it had not been validated against at least two actual	Moderate	Low	2	Investigating

			reads from other sources. **GEOL** Four customer reads were treated as validated, when they had not been validated against at least two actual reads from other sources.				
NHH meter reading application	6.7	6 Schedule 15.2	NHH meter readings not applied at 2400 on the day of the meter reading for NHH to HHR upgrades.	Strong	Low	1	Investigating
Interrogate meters once	6.8	Clause 7(1) and (2) Schedule 15.2	**GENE** For nine ICPs unread during the period of supply, exceptional circumstances did not apply, and the best endeavours requirement was not met. **GEOL** For six ICPs unread during the period of supply, exceptional circumstances did not apply, and the best endeavours requirement was not met.	Moderate	Low	2	Identified
Interrogate meters annually	6.9	8(1), 8(2), of schedule 15.2	**GENE** For eight ICPs unread in the 12 months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met. **GEOL**	Moderate	Low	2	Identified

			For eight ICPs unread in the 12 months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met. Unmetered ICPs were included in the meter reading frequency reporting up to May 2018.				
NHH meters 90% read rate	6.10	Clause 8(1) and (2) Schedule 15.2	GENE For three ICPs unread in the four months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met. GEOL For six ICPs unread in the four months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met.	Moderate	Low	2	Identified
NHH correction	8.1	19(1) Schedule 15.2	**GENE** Consumption while inactive is not consistently monitored and corrected. Corrections did not occur for historic bridged meters. **GEOL** Consumption while inactive is not consistently monitored and corrected.	Moderate	Low	2	Identified

			Correction did not occur for one ICP				
Identification of readings	9.1	3(3) and 5 of Schedule 15.2	**GENE** One customer read was treated as validated, when it had not been validated against at least two actual reads from other sources. **GEOL** Four customer reads were treated as validated, when they had not been validated against at least two actual reads from other sources.	Moderate	Low	2	Investigating
Electronic readings	9.6	17(4)(f) of schedule 15.2	**GENE and GEOL** AMI events for ARC are not all being reviewed and actioned for GENE and GEOL.	Moderate	Low	2	Identified
HHR aggregates	11.4	15.8	**GENE** HHR aggregates files do not contain electricity supplied information. Initial aggregates submissions for October 2017 did not contain the correct daily aggregation factors for each day for ICPs with aggregation factor changes during the audit period. Some revision submissions did not adjust for changes to ICP status since	Moderate	Low	2	Identified

			the previous revision. **GENH** HHR aggregates files do not contain electricity supplied information. Some HHR aggregates submissions were not zeroed.				
Submission accuracy	12.7	15.12	**GENE** Solar generation is reported with the EG1 profile, when it should be reported with PV1. Consumption while an ICP is inactive is not always included in reconciliation submissions. **GEOL** Solar generation is reported with the EG1 profile, when it should be reported with PV1. Consumption while an ICP is inactive is not always included in reconciliation submissions. Incorrect submissions for four ICPs with unmetered load, and two removed meters.	Moderate	Low	2	Identified
Permanence of meter readings	12.8	4 of Schedule 15.2	**GENE** Some estimates were not replaced with permanent estimates by revision 14. **GEOL**	Moderate	Medium	4	Disputed

			Some estimates were not replaced with permanent estimates by revision 14.				
Preparation of submission information	12.9	2 Schedule 15.3	**GENE** One category 3 and two category 5 ICPs with NHH submission recorded.	Moderate	Low	2	Identified
Historic estimates	12.11	4 and 5 of Schedule 15.3	Historic estimate proportions are incorrect for GEOL. Total historic estimate is calculated correctly for NSP changes but is not apportioned between the NSPs using the correct historic estimate process.	Strong	Low	1	Cleared
Forward estimates	12.12	6 of Schedule 15.3	**GENE** The accuracy threshold was not met for all months and revisions. **GEOL** The accuracy threshold was not met for all months and revisions.	Moderate	Low	2	Identified
HE reporting	13.4	10 of Schedule 15.3	**GENE** Historic estimate thresholds were not met for some revisions. **GEOL** Historic estimate thresholds were not met for some revisions.	Moderate	Low	2	Identified
					Future Risk Rating	**82**	
					Indicative Audit Frequency	**3 months**	

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	Recommendation	Description
Provision of registry information	3.5	Clause 9 Schedule 11.1	I recommend Genesis identifies who their electrical connection agents are and that they obtain electrical connection dates directly from that party
Provision of registry information	3.5	Clause 9 Schedule 11.1	Remove blanket approval to accept all ICPs and require distributors to get approval from Genesis for each ICP.
New and ready ICPs	3.10	15 Schedule 11.1	Run a monthly list from the registry of all ICPs where GENE or GEOL are the proposed trader to ensure Gentrack records align.
CS file content	4.3 and 4.10	5 and 11 Schedule 11.3	Monitor negative daily consumption in CS files.
Approved unmetered load	5.2	10.14 (2)(b)	Populate unmetered details for ICPs with consumption between 3,000 and 6,000 kWh per annum.
Defective metering	6.4	10.43(2) and (3)	Develop reporting for defective and bridged meter to identify trends, identify remedial actions and so the audit function can check for compliance.
NHH validation	9.5	16 Schedule 15.2	Investigate whether consumption while ICPs have inactive status is genuine. Following investigation, correct the status and re-disconnect as necessary.

ISSUES

Subject	Section	Recommendation	Description

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

I checked the Authority's website to identify any relevant exemptions.

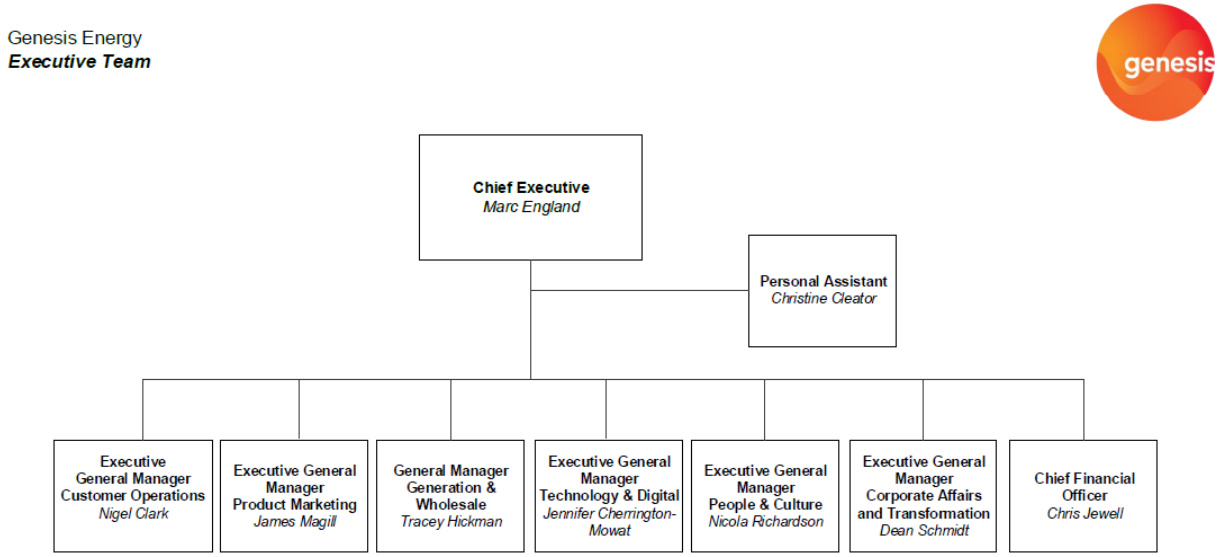
Audit commentary

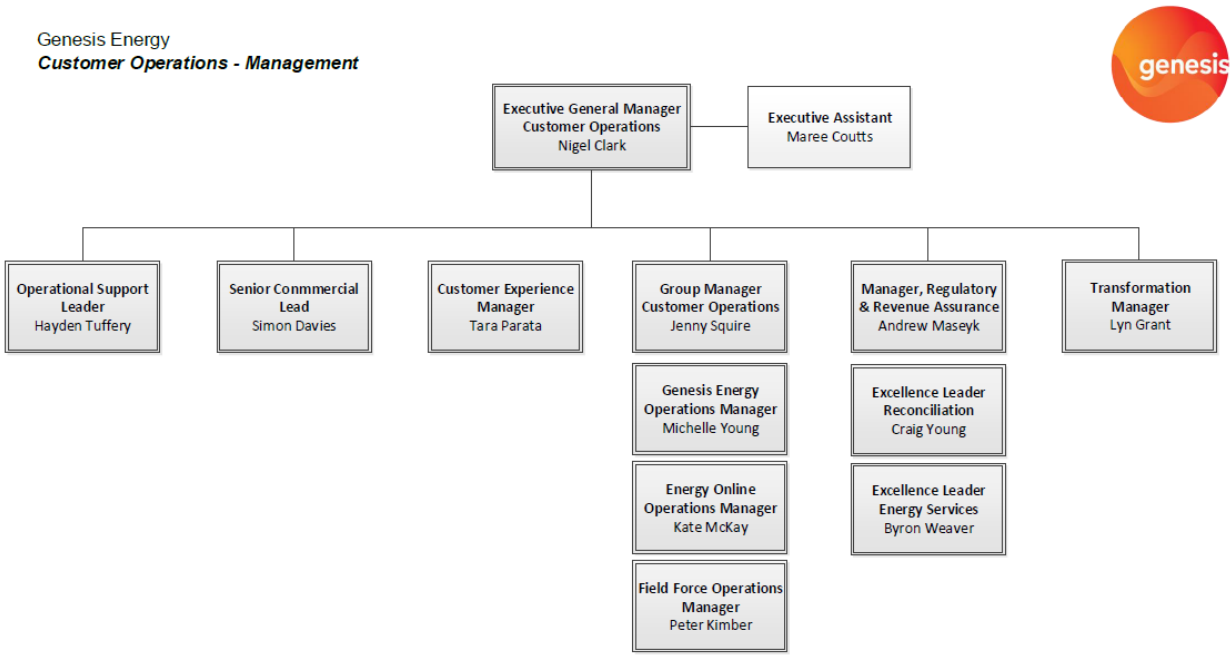
There are no current exemptions relevant to the scope of this audit.

Exemption No. 256 which exempts Genesis from submitting half hour aggregate data for category 1 or 2 ICPs expired 1 October 2017.

1.2. Structure of Organisation

Genesis provided a copy of their organisational structure:





1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor
Tara Gannon	Veritek Limited	Supporting Auditor

Personnel assisting in this audit were:

Name	Title
Alysha Majury	Customer Excellence Centre – Billing Team Leader
Craig Young	Excellence Leader – Reconciliation
Dianne O'Riley	New Connections
Wenli Zhu	Accounting Technician, Finance Operations
Elmarie Durand	Customer Services Representative
Grace Hawken	Technical Specialist - Reconciliations Team
John Fromont	Billing Team

Name	Title
Julia Jones	Technical Specialist – Reconciliations Compliance
Leah Davie-Curran	Customer Service Representative
Nicki Mahuta	Billing Critical
Shweta Arora	Reconciliation Services Analyst
Natalie Barrett	TOU, GE Operations

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

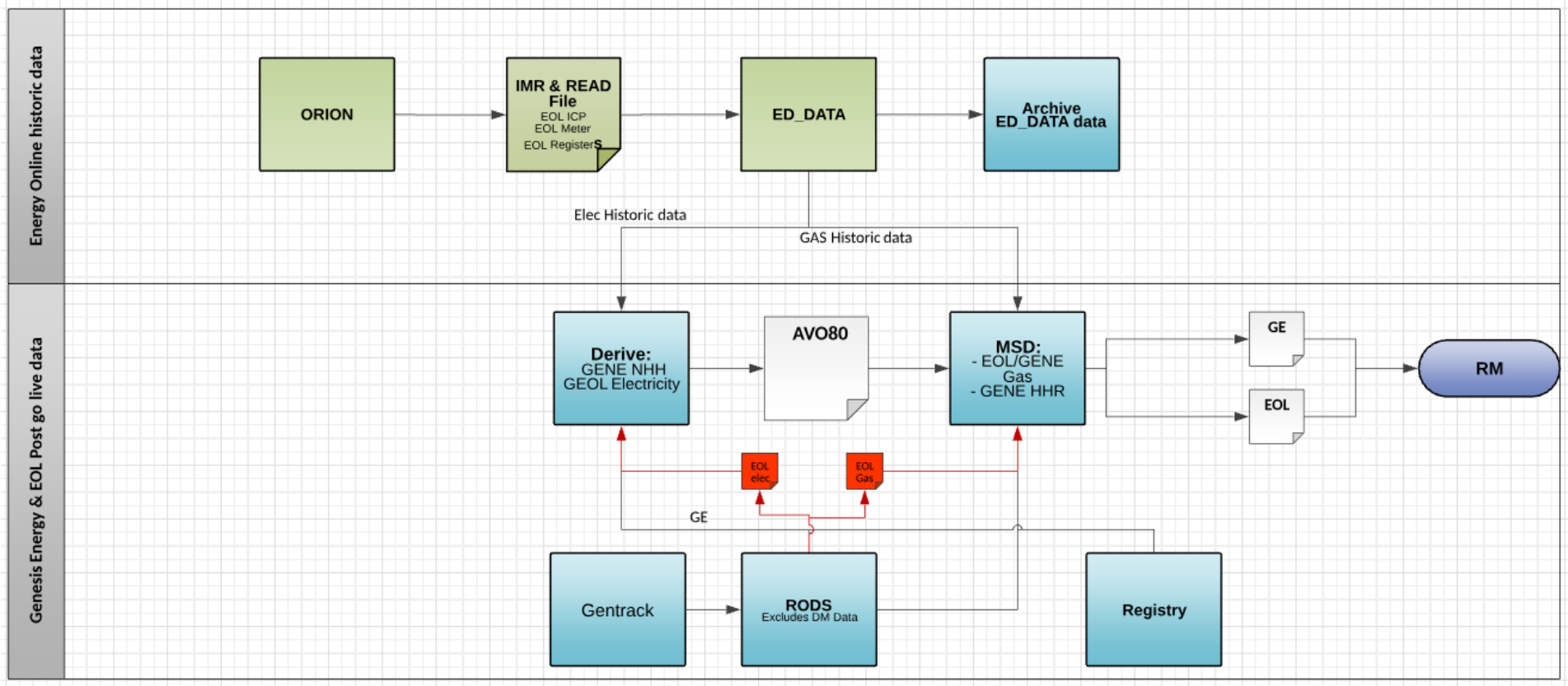
This area was examined by interview to confirm Genesis understands their obligations.

Audit commentary

Genesis engages EMS, AMS, and Wells as agents. The results of their audits are included in this report. Genesis understands their obligations in relation to this clause.

1.5. Hardware and Software

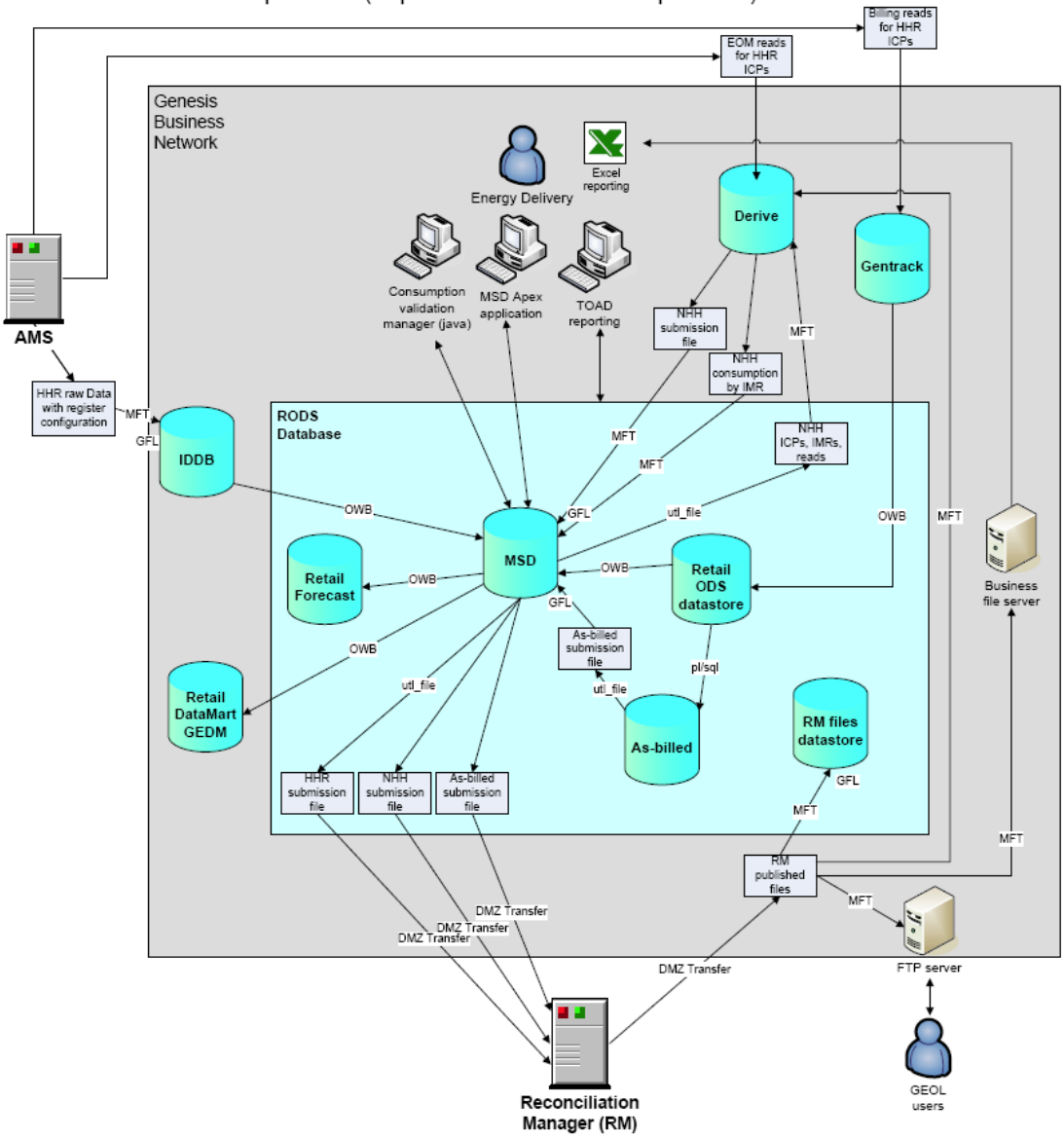
A diagram of the systems is shown below. The areas shaded green are now discontinued. The Orion system is no longer used and all GEOL ICPs are managed in Gentrack.



A diagram of the AMI HHR application architecture is shown below.

Key points:

- AMS continues to send EOM file to Derive and billing read file to Gentrack.
- The Retail ODS datastore sends ICP & IMR data to MSD.
- HHR data (including register configuration) is sent from AMS to IDDB and then to MSD.
- MSD creates the HHR submission file and submits this to the RM.
- MSD sends ICP, IMR and NHH reads files to Derive.
- File transfers use the MFT process (in place of the ESB file transfer process) and file loads use GFL process (in place of the ESB ETL process).



Stark RT version 6 is used for interrogation of generation metering.

Back-ups are in accordance with standard industry protocols.

1.6. Breaches or Breach Allegations

Genesis has had two breach allegations relevant to the scope of this audit recorded by the Electricity Authority during the audit period:

Ref	Breach Description	Clause	Date	Outcome
1707GENE1	Genesis attempted to win back a customer who was switching to a save protected retailer before the switch was completed.	Part 11 Clause 11.15 (4)	30/08/17	Declined to pursue without warning.
1709GENE1	Genesis failed to submit initial NSP volumes by 16:00 on the 4th business day.	Part 15 Clause 15.9 (a)	31/10/17	Early closure.

1.7. ICP Data

Genesis provided list file for each of their participant codes as at July 2018 and the information is summarised by metering category and status in the tables below.

GENE

Metering Category	2018	2017	2016	2015
1	409,403	418,547	442,114	447,053
2	2,918	2,703	2,865	2,691
3	1	1	0	0
4	0	0	0	0
5	2	2	2	2
9	927	1,172	1,132	916
Blank	2,318	2,387	1,161	1,064

Status	Number of ICPs (2018)	Number of ICPs (2017)	Number of ICPs (2016)	Number of ICPs (2015)
Active (2,0)	415,569	424,722	447,274	451,726
Inactive - new connection in progress (1,12)	1,212	966	806	632
Inactive – vacant (1,4)	10,646	10,966	13,099	14,816
Inactive – AMI remote disconnection (1,7)	2,199	1,831	44	1
Inactive – de-energised due to meter disconnected (1,9)	36	33	0	0
Inactive – at pole fuse (1,8)	53	46	0	0
Inactive – de-energised at meter box fuse (1,10)	20	10	0	0
Inactive – at meter box switch (1,11)	10	8	0	2
Inactive – ready for decommissioning (1,6)	2,270	2,957	4,441	4,395
Inactive – reconciled elsewhere (1,5)	0	4	2	3
Decommissioned (3)	40,249	37,654	33,876	32,086

GEOL

Metering Category	2018	2017	2016	2015
1	90,011	86,110	82,861	70,821
2	170	191	237	276
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
9	11	12	9	14
Blank	2	7	7	12

Status	Number of ICPs (2018)	Number of ICPs (2017)	Number of ICPs (2016)	Number of ICPs (2015)
Active (2,0)	90,194	86,230	83,114	71,123
Inactive - new connection in progress (1,12)	69	88	48	25
Inactive – vacant (1,4)	850	834	737	1,371
Inactive – AMI remote disconnection (1,7)	61	64	34	6
Inactive – de-energised due to meter disconnected (1,9)	2	0	0	0
Inactive – at pole fuse (1,8)	3	3	1	1
Inactive – de-energised at meter box fuse (1,10)	0	1	0	2
Inactive – at meter box switch (1,11)	1	0	0	23
Inactive – ready for decommissioning (1,6)	189	206	218	173
Inactive – reconciled elsewhere (1,5)	0	0	0	0
Decommissioned (3)	2,115	1,868	1,605	1,488

GENH

Metering Category	2018	2017	2016	2015
1	100	82	77	78
2	922	753	635	546
3	632	452	347	262
4	192	150	91	73
5	22	11	15	14
9	1	1	0	1
Blank	2	1	0	0

Status	Number of ICPs (2018)	Number of ICPs (2017)	Number of ICPs (2016)	Number of ICPs (2015)
Active (2,0)	1,841	1,450	1,165	974
Inactive - new connection in progress (1,12)	11	13	11	-
Inactive – vacant (1,4)	0	2	3	4
Inactive – AMI remote disconnection (1,7)	0	0	0	0
Inactive – de-energised due to meter disconnected (1,9)	0	1	0	0
Inactive – at pole fuse (1,8)	0	1	0	0
Inactive – de-energised at meter box fuse (1,10)	0	0	0	0
Inactive – at meter box switch (1,11)	0	0	0	0
Inactive – ready for decommissioning (1,6)	0	1	1	2
Inactive – reconciled elsewhere (1,5)	2	2	0	0
Decommissioned (3)	406	0	365	350

1.8. Authorisation Received

A letter of authorisation was not required or sought.

1.9. Scope of Audit

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

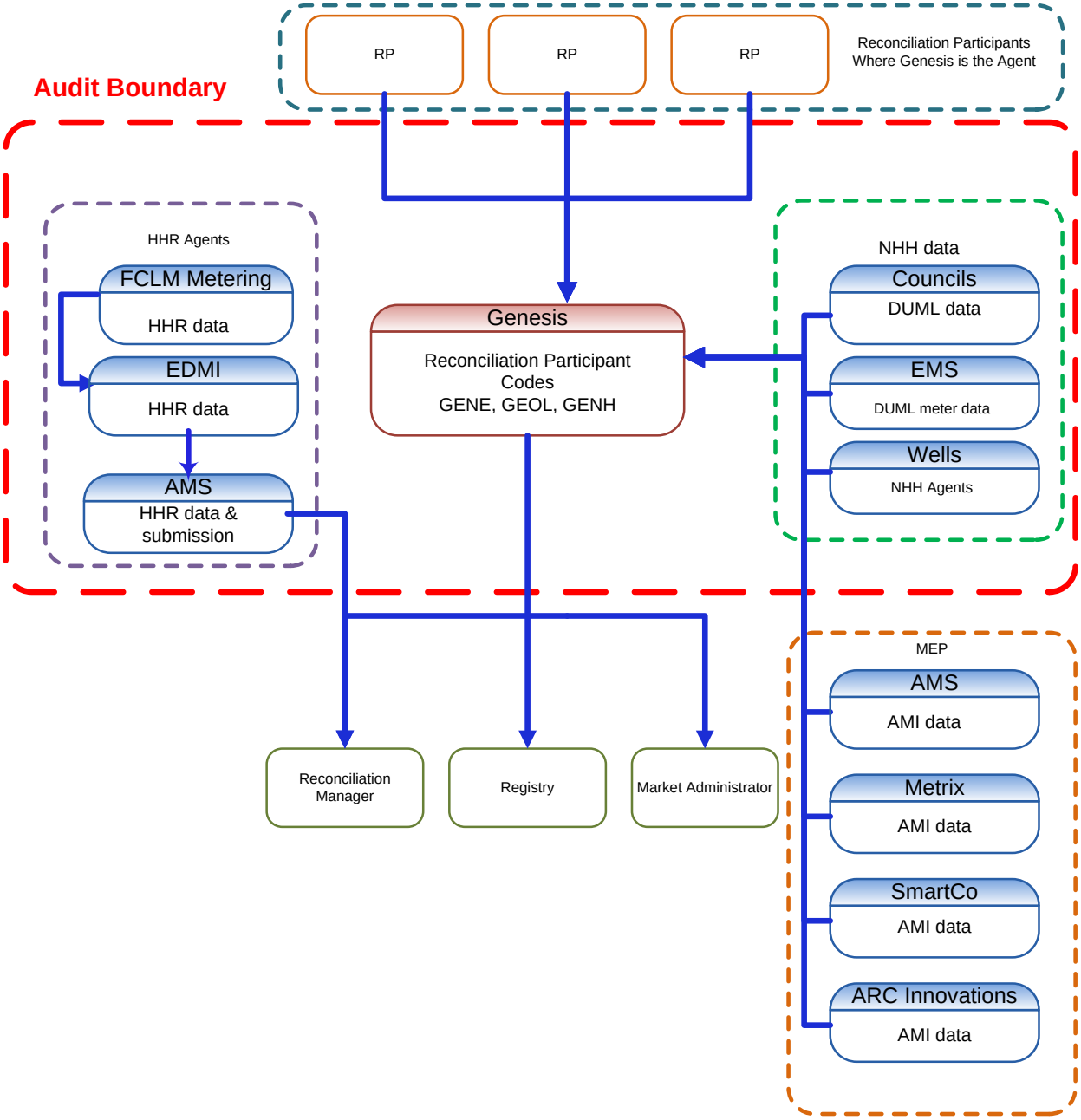
The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits version 7.2.

This audit includes the GENE, GENH and GEOL participant codes.

Any reference to Genesis in the report includes all participant codes, unless the specific code is mentioned.

The audit was carried out on August 14-16, 2018 at the Genesis offices in Hamilton.

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



The table below shows the tasks under clause 15.38 of part 15 for which Genesis requires certification.

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	**Agents Involved in Performance of Tasks**	**MEPs**
(a) - Maintaining registry information and performing customer and embedded generator switching		
(b) – Gathering and storing raw meter data	AMS – HHR Wells – NHH	AMS Metrix SmartCo ARC Innovations

Tasks Requiring Certification Under Clause 15.38(1) of Part 15	Agents Involved in Performance of Tasks	MEPs
(c)(iii) - Creation and management of HHR & NHH volume information	AMS – HHR Councils – DUML databases EMS - DUML data	
(d) – Calculation of ICP days	AMS - HHR	
(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	AMS - HHR	
(e) – Provision of submission information for reconciliation	AMS - HHR	

Genesis receives DUML data from several Councils. These parties are considered agents under clause 15.34.

The remaining agents listed above have been audited in accordance with the Guidelines for Reconciliation Participant Audits relevant at the time of the audit.

1.10. Summary of previous audit

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

Subject	Section	Clause	Non-compliance	Status
Provision of information	2.1	15.2	Small number of registry discrepancies. Some late status updates. Some submission related areas where controls require strengthening to ensure compliance. Some corrections not conducted.	Still existing
Changes to registry information	3.3	10 of schedule 11.1	Some status updates were not processed within five business days of the event on the Registry.	Still existing
Trader responsibility	3.4	11.18	Two incorrect MEP nominations.	Still existing
Provision of registry information	3.5	Clause 9 Schedule 11.1	Some late and incorrect status updates. Some late and incorrect MEP nominations.	Still existing

Subject	Section	Clause	Non-compliance	Status
ANZSIC codes	3.6	9(1)(k) of schedule 11.1	Some incorrect ANZSIC codes.	Still existing
Unmetered load	3.7	Clause 9(1)(f) of Schedule 11.1	Incorrect unmetered details for two ICPs.	Still existing
Management of Active status	3.8	17 of schedule 11.1	Some incorrect status updates.	Still existing
Management of Inactive status	3.9	19 of schedule 11.1	Some incorrect inactive statuses.	Still existing
Change of MEP	3.11	10.22(1)(a)(i)	Backdated MEP changes.	Still existing
Switching	4.2	3 of schedule 11.3	Incorrect AN response codes for GEOL. Only 15% of event dates within 5 business days.	Still existing
	4.3	5 of schedule 11.3	9 late CS files for GENE. Incorrect average daily consumption for GENE.	Still existing
	4.4	6(1) and 6A Schedule 11.3	8 late RR files for GEOL. 6 late RR files for GENE.	Still existing
	4.5	6(2) and (3) Schedule 11.3	2 RR files incorrectly rejected.	Still existing
	4.8	10(1) of schedule 11.3	Incorrect AN response codes for GEOL.	Still existing
	4.10	11 of schedule 11.3	Incorrect CS content for GEOL. Approx. 150 late CS files for GEOL. Incorrect CS file content for GENE. Approx. 1,700 late CS files for GENE.	Still existing
	4.11	12 of schedule 11.3	42 late RR files for GEOL. 72 late RR files for GENE.	Still existing
	4.15	17 and 18 Schedule 11.3	One incorrect NW rejection by GEOL.	Cleared

Subject	Section	Clause	Non-compliance	Status
Shared unmetered load	5.1	11.14	Incorrect shared unmetered load.	Still existing
Unmetered threshold	5.2	10.14 (2)(b)	Unmetered load over 6,000 kWh per annum and unmetered load between 3,000 and 6,000 not of an approved load type.	Still existing
Unmetered threshold exceeded	5.3	10.14 (5)	Unmetered load over 6,000 kWh per annum and not resolved within the allowable timeframes.	Still existing
Distributed unmetered load	5.4	11 Schedule 15.3	Distributed unmetered databases not accurate.	Still existing
Electricity conveyed	6.1	10.13 of part 10	While meters were bridged, energy was not metered and quantified according to the code for ten GENE ICPs, and four GEOL ICPs.	Still existing. Refer to **section 6.1**.
Defective metering	6.4	10.43(2) and (3)	One GENE ICP with suspected defective metering was not reported to the MEP for a period of at least 54 days after it was identified.	No examples of defective metering were provided. Refer to **section 6.4**.
Derivation of meter readings	6.6	3(1), 3(2) and 5 Schedule 15.2	GEOL does not consistently identify meter condition information that requires action.	Cleared. Other non-compliance exists in this section, refer to **section 6.6**.
Interrogate meters once	6.8	Clause 7(1) and (2) Schedule 15.2	Validated meter reading not obtained during the period of supply for all ICPs.	Still existing. Refer to **section 6.8**.

Subject	Section	Clause	Non-compliance	Status
Interrogate meters annually	6.9	8(1), 8(2), of schedule 15.2	Incorrect reporting provided to the authority by GEOL overstating the number of unread ICPs at 12 months. Pre-pay and account managed ICPs not subject to the same rigorous processes as other ICPs.	Still existing. Refer to **section 6.9**.
NHH correction	8.1	Clause 10.12, 10.24 & 10.43(3) of part 10. Clause 19 of schedule 11.1. Clause 15.2(2) and 15.12 of part 15, 19(1) of Schedule 15.2, 2(1)(b) of schedule 15.3 and 15.2(2) of part 15	Some NHH corrections for GEOL and GENE were not processed completely and accurately. Some meters have not had consumption during a bypassed period reported.	Still existing. Refer to **section 8.1**.
Identification of readings	9.1	3(3) and 5 of Schedule 15.2	GEOL records customer and photo readings as actual. Some estimated closing readings were recorded as actual closing readings.	Still existing. Refer to **section 9.1**.
Electronic readings	9.6	17(4)(f) of schedule 15.2	AMI events are not all being reviewed and actioned for GENE and GEOL.	Still existing. Refer to **section 9.6**.
ICP days	11.2	15.6	AV110 data is not zeroed where GEOL has previously submitted ICP days, but there are no ICP days reported in the current revision. Because no replacement data was submitted, the original ICP days remain in the reconciliation manager's database.	This issue remains but as r14 has passed has not been raised as non-compliance again. Refer to **section 11.2**.

Subject	Section	Clause	Non-compliance	Status
Electricity supplied	11.3	15.7	Electricity supplied information incorrect for GEOL. Electricity supplied revisions not conducted for GENH.	Cleared, no issues identified. Refer to **section 11.3**.
HHR aggregates	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Still existing. Refer to **section 11.4**.
Permanence of meter readings	12.8	4 of Schedule 15.2	Some estimates not replaced at R14 for GENE and GEOL.	Still existing. Refer to **section 12.8**.
Preparation of submission information	12.9	2 Schedule 15.3	Unmetered load not submitted for 2 ICPs. One HHR Category 3 ICP with NHH submission.	Still existing, for different ICPs. Refer to **section 12.9**.
Historic estimates	12.11	4 and 5 of Schedule 15.3	Historic estimate proportions are incorrect for GEOL. Total historic estimate is calculated correctly for NSP changes but is not apportioned between the NSPs using the correct historic estimate process.	Cleared once the ICPs have migrated to Gentrack. Refer to **section 12.11**.
Forward estimates	12.12	6 of Schedule 15.3	The accuracy threshold was not met for all months and revisions by GENE and GEOL. Forward estimate is created in error for GEOL ICPs where a meter change has occurred in the submission month.	Still existing. Cleared once the ICPs migrated to Gentrack. Refer to **section 12.9**.

Subject	Section	Clause	Non-compliance	Status
Profile changes	12.13	7 Schedule 15.3	One GEOL ICP did not have an actual read on the day of a profile change.	Cleared. Refer to **section 12.13**.
Provision of submission information	13.2	8 of Schedule 15.3	Some consumption and ICP days were reported against an incorrect NSP.	Cleared. Refer to **section 13.2**.
HE reporting	13.4	10 of Schedule 15.3	Historic estimate thresholds were not met for some revisions for GENE and GEOL.	Still existing. Refer to **section 13.4**.

Subject	**Section**	**Clause**	**Recommendation**	**Status**
Data transmission	2.3	Clause 20 of schedule 15.2	Zip and password protect DUML files.	Progress has been made, refer to **section 2.3**.
Provision of registry information	3.5	Clause 9 Schedule 11.1	Run discrepancy reporting monthly to identify incorrect statuses.	Cleared
Electricity conveyed	6.1	10.13 of part 10	Develop a process to manage any GEOL ICPs that have distributed generation indicated but no injection channel recorded.	Cleared
Electricity conveyed	6.1	10.13 of part 10	Confirm whether the 8 GENH ICPs have generation. For those that do, ensure there is appropriate metering. For those that don't, request the distributor to change the installation type field.	Cleared
NHH validation	9.5	16 Schedule 15.2	Monitor zero consumption meters to identify possible stopped meters and theft. Monitor disconnected ICPs with consumption to identify unauthorised reconnections.	Underway. Refer to **section 9.5**.

Subject	Section	Clause	Issue	Authority response
Distributed generation	6.1	10.13 of part 10	Distributed generation connected without the knowledge of traders. Change the Code to require the Distributor's approval process to include the following two steps: 1. Confirmation that a trader has agreed to purchase the generated volume. 2. Confirmation that import/export metering is in place.	Consider as part of Part 6 review
NHH meter reading application	6.7	6 of schedule 15.2	Some NHH meter readings made effective the day before the physical meter change to ensure continuity of consumption information and accuracy of ICP days. This may require a Code change to ensure compliance is possible. I recommend the Authority considers a Code change to allow NHH meter readings to be effective at the beginning of the day rather than the end of the day for this scenario.	Being considered by STG
Buying and selling notifications	11.1	15.3	Traders are unable to enter profile codes when creating buying and selling notifications on the electricity reconciliation portal, making it difficult to comply with the requirements of clause 15.3.	Change with RM regarding trade notifications
ICP days	11.2	15.6	When HHR ICPs are decommissioned or made inactive, there is consumption for the "inactive" day, which must be submitted, and this leads to one ICP day being submitted as well, which the registry is not expecting.	Being considered by STG

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

Audit commentary

Genesis has a dedicated team to manage registry discrepancies. Registry rejection notifications are managed on a daily basis. A registry discrepancy report is run on a weekly basis to check for any discrepancies that are not captured through the registry notification process.

The three list files were analysed, and the tables below show the findings:

GENE:

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
ICPs at status (1,11) "De-energised at meter box" in the registry	10	8	0	It appears these installations were genuinely disconnected at the meter box.
Status of (1,12) "New connection in progress" with an initial energisation date populated	44	44	62	This is discussed further in **Section 3.9** "Management of Inactive Status"
Blank ANZSIC codes	0	0	0	None found in this audit.
ANZSIC T994/994000 "Don't know"	4	3	768	See **Section 3.6.**
ANZSIC "T999" not stated	0	0	0	None found in this audit.
Category 9 -Active with MEP and UML "N"	15	23	22	See **Section 3.4**
Active ICP with no MEP	0	32	1	See **Section 3.4**.

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
ICPs with Distributor unmetered load populated but retail unmetered load is blank	2	17	14	See **Section 3.7** "Changes to Unmetered Load".
Standard unmetered load different to distributor field	10	10	27	See **Section 3.7** "Changes to Unmetered Load".
ICPs with unmetered load flag Y but load is recorded as zero	0	0	67	None found in this audit.
Shared unmetered load ICPs with no UML	0	0	1	None found in this audit.
Shared unmetered load ICPs with an unmetered load = zero	0	0	0	None found in this audit.
Shared unmetered load ICPs with incorrect load	0	5	5	See **Section 5.1** "Maintaining Shared Unmetered Load".
Unmetered load differences between registry and Derive	0	0	1,226	None found in this audit.
Incorrect EG1 profiles	2,882	-	-	See **Section 6.1** and **12.7** "electricity conveyed" and "accuracy of submission information"

GENH:

Analysis of the GENH list file only found two issues:

- ICPs 0006476414RNE04 and 0005876656RNF26 have generation recorded by the distributor but "gifting" has not been notified
- 33 ICPs had unknown ANZSIC codes recorded.

GEOL:

Issue	2018 Qty	2017 Qty	2016 Qty	Comments
Status of (1,12) "New connection in progress" with an initial energisation date populated	5	8	2	See **Section 3.9** "Management of Inactive Status.
ICPs at status (1,11) "De-energised at meter box" in the Registry	1	0	0	ICP switched in at this status
Blank ANZSIC codes	0	0	30	None found in this audit.
ANZSIC T994/994000 "Don't know"	10	16	49	See **Section 3.6** "ANZSIC Codes"
ICPs with incorrect unmetered load	0	0	3	None found in this audit.
ICPs with Distributor unmetered load populated but retail unmetered load is blank and unmetered flag = N	9	0	6	See **Section 3.7** (changes to unmetered load"
ICPs with incorrect shared unmetered load	4	0	1	None found in this audit.
Incorrect RPS profiles	69	-	-	See **Section 6.1** and **12.7** "electricity conveyed" and "accuracy of submission information"

The validation processes appear to be operating as intended. Delayed corrections are sometimes due to resourcing.

Other issues recorded are as follows:

- some late status updates
- some submission related areas where controls require strengthening to ensure compliance
- some corrections not conducted.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 15.2 From: 01-Aug-17 To: 31-Jul-18	Small number of registry discrepancies. Some late status updates. Some submission related areas where controls require strengthening to ensure compliance. Some corrections not conducted. Potential impact: High Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are recorded as moderate because the scope of this clause is broad, and most areas have moderate or strong controls. There is a moderate impact on settlement for some discrepancies therefore the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
The bulk of descrepancies relate to EG1 / PV1 and these will be bulk updated to correct where we can confirm the generation is solar.	31 October 2018	Investigating
The late status updates relate to either; Credit disconnections that are updated on the confirmation of the permanent disconnection but backdated to the disconnection date. There is a system change required to enable udating of status at time of disconnection. Determiniation of change solution is underway with a view to implement at first available window, or	30 November 2018	
Errors in status discovered through business activites such as revenue assurance. Corrections are then made back to the actual change date, resulting in late update but accurate data on Registry. This practice is not intended to change.	Nil	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Ina ddition to above, training to be delivered to staff responsible for entering solar customers of correct Profile code. Ongoing checks to catch any errors in Registry valaidation activity.	31 October 2018	

2.2. Provision of information (Clause 15.35)

Code reference

Clause 15.35

Code related audit information

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

Audit observation

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

Audit commentary

No late information was identified. Compliance is confirmed.

Audit outcome

Compliant

2.3. Data transmission (Clause 20 Schedule 15.2)

Code reference

Clause 20 Schedule 15.2

Code related audit information

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

Audit observation

I checked the process and audit trail of NHH and HHR meter reading data, AMI data, and DUML data.

- AMS provides NHH AMI data and HHR data as an agent through the AMS data store.
- Wells provides NHH data as an agent via SFTP.

Audit commentary

GENE (and GEOL post migration to Gentrack)

AMI and HHR data is loaded into the AMS data store by AMS. Gentrack retrieves data from the datastore according to a schedule.

Wells NHH meter readings are provided via SFTP, and an automated process moves the readings to a folder to be uploaded into Gentrack.

Reads are transferred from Gentrack to Derive overnight, and HHR volumes are transferred to MSD according to an automated schedule.

To confirm the data transfer process, I:

- traced a sample of readings for five NHH AMI ICPs from the AMS data store data to Gentrack and Derive
- traced a sample of readings for ten NHH ICPs from the Wells source file data to Gentrack and Derive

- traced volumes for a sample of three ICPs for two months from the AMS data store data to MSD and the HHR submissions.

All reads and volumes checked were consistent with the source file information.

GEOL

AMI reads are retrieved from the AMS data store according to a schedule and moved into a folder to be uploaded.

Wells NHH meter readings are provided via SFTP, and an automated process moves the readings to a folder to be uploaded into Orion.

To confirm the data transfer process, I:

- traced a sample of readings for five NHH AMI ICPs from the AMS data store data to Gentrack and Derive
- traced a sample of readings for ten NHH ICPs from the Wells source file data to Gentrack and Derive.

All reads and volumes checked were consistent with the source file information.

GENH

The AMS report confirms compliance.

Generation

Data is collected by Stark in a secure manner. A check of raw data for two stations against submission information confirmed accuracy.

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

The logs for the following activities were reviewed.

- **Meter readings**: a compliant audit trail is recorded within the relevant databases.
- **Registry notifications**: a compliant audit trail is recorded within the registry.
- **Switching files**: a compliant audit trail is recorded within the registry.
- **Reconciliation reports**: a compliant audit trail is recorded within the allocation portal.

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 the current Genesis terms and conditions.

Audit commentary

The current Genesis 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 the current Genesis terms and conditions and discussed compliance with these clauses.

Audit commentary

Genesis' contract with their customers includes consent to access for authorised parties for the duration of the contract. Genesis 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

Loss compensation is not required for any Genesis ICPs.

Audit commentary

Loss compensation is not required for any Genesis ICPs.

Audit outcome

Not applicable

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 the current Genesis terms and conditions.

Audit commentary

Genesis' 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 checked to confirm a retailer acceptance step is in place.

I checked that arrangements were in place for relevant MEPs.

Audit commentary

The new connection process includes a retailer acceptance step and a service order is raised at this time.

The new connection process requires an MEP to be selected, and the MEP nomination is processed at the same time the job to complete the new connection is raised. Arrangements are in place with all MEPs. Some issues were found with the timeliness of MEP nominations, this is recorded as non-compliance in **section 3.11**.

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

I asked Genesis if there were any examples of temporary energisation.

Audit commentary

No examples of temporary energisation were identified. Genesis understands the requirements of this clause.

Audit outcome

Compliant

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

Code reference

Clause 10.33A(1)

Code related audit information

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

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

Audit observation

The new connection process was examined in detail to evaluate the strength of controls. The list file as at July 2018 and event detail report for March to June 2018 were analysed to confirm process compliance and that controls were functioning as expected.

I checked the active dates to the initial energisation dates and certification dates for all new connections identified.

Audit commentary

GENE

GENE had accepted responsibility for all newly electrically connected ICPs.

Status changes to active for both new connections and reconnections were matched to certification details on the metering installation details report.

One new connection was not certified within five business days of becoming active.

ICP	Initial Electrical Connection date	Certification date	Active date
1000574634PC1D1	13/04/2018	18/06/2018	13/04/2018

Clause 10.33A(2)(a)(iii) requires the reconciliation participant to ensure certification of metering installations occurs within five business days of electrical connection. The Code does not differentiate between new connections and reconnections.

79 reconnections were not certified within five business days of electrical connection.

GEOL

GEOL had accepted responsibility for all newly electrically connected ICPs.

Status changes to active for both new connections and reconnections were matched to certification details on the metering installation details report.

All new connections were certified within five business days of becoming active.

Clause 10.33A(2)(a)(iii) requires the reconciliation participant to ensure certification of metering installations occurs within five business days of electrical connection. The Code does not differentiate between new connections and reconnections.

49 reconnections were not certified within five business days of electrical connection.

GENH

One installation was not certified within five business days of electrical connection. It is shown below.

ICP	Initial Electrical Connection date	Certification date	Active date
0000043990WED3C	25/06/2018	04/07/2018	25/06/2018

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.11 With: Clause 10.32 From: 01-Mar-18 To: 30-Jun-18	79 reconnections were not certified within five business days for GENE. 49 reconnections were not certified within five business days for GEOL. One GENE new connection not certified for two months after electrical connection. One GENH new connection certified two days later than the 5-day threshold. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I've rated the controls as moderate because they are strong for new connections but there are no controls in place for ensuring certification occurs at the time of reconnection. Uncertified metering installations are likely to be less accurate than certified metering installations, so there could be a minor impact on settlement. The audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
For reconncections requiring it, re-certification is requested at time of reconnection request. Retailers are at the whims of the certifiying agent logistics to visit site and update of Registry. We will take up commercial discussions with field agent to better achieve compliance.	31 October 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Depending on commercial discussions KPI's may be introduced with field agents.	31 October 2018	

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

A registry list file with history for the audit period was reviewed to identify all the networks Genesis traded on during the audit period. Arrangements for line function services with these networks were discussed.

Audit commentary

Genesis confirmed there are arrangements in place with all networks they currently 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

A registry list file with history for the audit period was reviewed to identify all MEPs for Genesis ICPs during the audit period. Arrangements for MEP services with these MEPs were discussed.

Audit commentary

Genesis confirmed there are arrangements in place with all MEPs for Genesis ICPs.

Audit outcome

Compliant

3. MAINTAINING REGISTRY INFORMATION

3.1. Obtaining ICP identifiers (Clause 11.3)

Code reference

Clause 11.3

Code related audit information

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

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

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

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

Audit observation

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

Audit commentary

This requirement is well understood and managed by Genesis.

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 in **section 2.9**. Timeliness of new connections is discussed in **section 3.5**.

The process to update the registry was reviewed for a diverse sample of 50 new connections.

Audit commentary

I walked through the registry update process for a sample of 50 new connections including HHR, NHH and unmetered load. The accuracy and timeliness of registry updates is discussed in **section 3.5**.

Audit outcome

Compliant

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

Code reference

Clause 10 Schedule 11.1

Code related audit information

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

Audit observation

The new connection process is discussed in **section 3.5**, the reconnection process is discussed in **section 3.8**, and the disconnection process is discussed in **section 3.9**.

In this section, I have examined the event detail report for the audit period to determine the overall performance. I checked a sample of at least 15 ICPs per retailer code where updates were late to determine the root cause or trends. If there were less than 15 late updates I checked them all.

Audit commentary

Changes to Active, reconnections

Backdated reconnections were reviewed. Examination of the event detail report found no GENH reconnections.

The table below shows all Active changes for the three codes.

Event		Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to active-Reconnections	GENE	2016	3,396	2,241	1,155	11.2	66%
	GEOL	2016	551	261	290	11.8	47%
	GENH	2016	0	-	-	-	-
	GENE	2017	3,678	2,235	1,443	10.7	61%
	GEOL	2017	669	194	475	21	29%
	GENH	2017	0	-	-	-	-
	GENE	**2018**	**3,239**	**2,543**	**696**	**9.4**	**79%**
	GEOL	**2018**	**1,346**	**698**	**648**	**13.2**	**52**
	GENH	**2018**	**0**	**-**	**-**	**-**	**-**

GENE

GENE had 204 reconnections backdated 30 days or more in the registry. This an increase from the 19 reconnections recorded in 2017. 15 of these were checked and I found the most common issues were status changes to Active to cater for consumption on disconnected ICPs and status errors identified by validation.

GEOL

GEOL had 115 reconnections backdated 30 days or more in the registry. This an increase from the 20 reconnections recorded in 2017. 20 of these were checked and they all related to status corrections found through validation.

Changes to de-energised – remote and manual disconnections

The table below shows by company code, the registry updates where the status had been updated to "inactive" for the three months from March through to June 2018. This excludes ICPs at status "New connection in progress" which is discussed in **section 3.5** below.

Event	Code	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to de-energised – all statuses except new connection in progress, deenergised remotely by AMI and	GENE	2016	5,340	4,838	497	6.3	91%
	GEOL	2016	241	223	18	3.2	92%
	GENH	2016	0	-	-	-	-

Event	Code	Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
ready for decommissioning	GENE	2017	3,789	3,460	329	3.9	91%
	GEOL	2017	330	64	266	21	29%
	GENH	2017	1	0	1	8	0%
	GENE	**2018**	**817**	**670**	**147**	**5.8**	**82%**
	GEOL	**2018**	**190**	**79**	**111**	**52.2**	**42%**
	GENH	**2018**	**0**	**-**	**-**	**-**	**-**
De-energised remotely by AMI	GENE	2018	2,047	2,025	22	1.3	99%
	GEOL	2018	4	0	4	75.5	0%
Change to de-energised ready for decommissioning	GENE	2016	485	133	352		27%
	GEOL	2016	59	30	29	35	51%
	GENH	2016	2	2	0	0	100%
	GENE	2017	180	16	164	47	9%
	GEOL	2017	27	11	16	81	41%
	GENH	2017	5	2	3	21	40%
	GENE	**2018**	**240**	**36**	**204**	**39**	**15%**
	GEOL	**2018**	**42**	**9**	**33**	**126**	**21%**
	GENH	**2018**	**2**	**0**	**2**	**19.5**	**0%**

Inactive Status (excluding 1,12 & 1,6)

This year I've separated out manual disconnections from remote disconnections because the processes are different, and I would expect a higher level of compliance for remote disconnections.

GENE

GENE achieved compliance for 99% of remote disconnections and 82% of manual disconnections. I checked a sample of 20 late updates and found the most common issue was backdated credit disconnections. Credit disconnections are not populated on the registry immediately, which leads to backdating when the status is changed.

GEOL

GEOL only had four remote disconnections recorded and they were all over five days. Only 42% of manual disconnections were processed on time. I checked a sample of 20, including the four remotely disconnected ICPs and processing errors caused 19 late updates. One late update was due to a lengthy investigation into a self-reconnection.

GENH

There were no GENH ICPs disconnected during the audit period.

Inactive Status – Ready for Decommissioning

GENE

GENE's compliance has increased from 9% to 15%. There were 70 ICPs backdated to "ready for decommissioning" by 30 days or more in the registry. A sample of ten of these were checked and it was found they related to late notification from either the network or the field contractor.

GEOL

GEOL's compliance has reduced from 41% to 21%. There were 26 ICPs backdated to "ready for decommissioning" by 30 days or more in the registry. 19 of these occurred on 18/05/18 and it appears the status was changed as part of a validation exercise. All 19 should have been at inactive vacant, not inactive - ready for decommissioning.

GENH

Two GENH ICPs were changed to inactive, ready for decommissioning. Both were late due to processing issues.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: Clause 10 of schedule 11.1 From: 01-Mar-18 To: 30-Jun-18	Some status updates were not processed within five business days of the event on the Registry. Potential impact: Medium 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 because there is room for improvement with regard to the timeliness of identifying and fixing status discrepancies. The impact on settlement is minor because status discrepancies are identified at the time of submission where there is consumption on inactive ICPs and these are then remedied. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer to 2.1 above. In respect of changes to Inactive-Ready for Decommissioning it appears that in many cases the ICP is initially disconnected for reasons other than de-commissioning (i.e. vacant) and then at a later date a decision when a decision is taken to decommission ICP, the change of Inactive reason code is being back dated to initial disconnection. This practice will cease. The 19 GEOL identified as having incorrect reason code will be corrected.	30 September 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer to 2.1 above		

3.4. Trader responsibility for an ICP (Clause 11.18)

Code reference

Clause 11.18

Code related audit information

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

A trader ceases to be responsible for an ICP if:

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

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

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

Audit observation

The new connection process was discussed and the list file, as at July 2018, was examined to confirm that all active metered ICPs have an MEP recorded. This analysis found six active GEOL ICPs and 15 GENE ICPs with no meter details recorded in the registry. All 21 ICPs were checked.

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

Audit commentary

The correct MEP has been nominated for three of the six GEOL ICPs. The other three have NGCM metering installed but a nomination has not yet been made.

Four issues were found with the check of the 15 GENE ICPs. The issues were:

- four ICPs are now decommissioned, just a timing issue
- two ICPs have the incorrect MEP nominated
- four ICPs have the correct nomination and GENE is waiting for the MEP to update the registry
- five ICPs had processing issues associated with the decommissioning process

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

When an ICP is to be decommissioned, 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. Genesis also advises the MEP responsible that a site is to be decommissioned. A sample of ten ICPs was examined, which confirmed an attempt to read the meter was made at the time of removal, and the MEP was notified.

Audit outcome

Non-compliant

<table>
<tr><th>Non-compliance</th><th colspan="3">Description</th></tr>
<tr><td>Audit Ref: 3.4
With: Clause 11.18

From: 01-Mar-18
To: 30-Jun-18</td><td colspan="3">5 incorrect MEP nominations.
Potential impact: Low
Actual impact: Low
Audit history: None
Controls: Moderate
Breach risk rating: 2</td></tr>
<tr><th>Audit risk rating</th><th colspan="3">Rationale for audit risk rating</th></tr>
<tr><td>Low</td><td colspan="3">The controls are rated as moderate because there is room for improvement with regard to the identification of incorrect nominations.
Settlement and billing are still occurring because Genesis has the metering details recorded. The audit risk rating is low.</td></tr>
<tr><th colspan="2">Actions taken to resolve the issue</th><th>Completion date</th><th>Remedial action status</th></tr>
<tr><td colspan="2">The 5 incorrect MEP nominations have been traced to a non performing staff member no longer employed. Importance of correct nominations has been re-iterated with team concerned.</td><td></td><td rowspan="3">Cleared</td></tr>
<tr><th colspan="2">Preventative actions taken to ensure no further issues will occur</th><th>Completion date</th></tr>
<tr><td colspan="2">In addition, in situations where a MEP change or error is updated in our billing engine but Registry update fails then we have a Registry validation that captures this.</td><td></td></tr>
</table>

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

I examined the event detail reports for the period March to June 2018 to determine the overall performance. I checked 20 late updates for GENE and all late updates for GEOL and GENH.

The new connection process was examined. I checked all ICPs with a variance between the active date and the initial energisation date, or the active date and meter certification date.

Audit commentary

The table below shows that the registry was not always updated within five business days.

Event		Year	Total ICPs	ICPs notified within 5 days	ICPs notified greater than 5 days	Average notification days	Percentage compliant
Change to active-New connections	GENE	2016	1,520	835	685	6.2	54%
	GEOL	2016	62	33	29	6.8	53%
	GENH	2016	5	5	0	3	100%
	GENE	2017	1,850	939	911	8.04	51%
	GEOL	2017	68	52	16	7.4	76%

	GENH	2017	12	11	1	1.9	92%
	GENE	**2018**	**1,919**	**1,095**	**824**	**7.8**	**57%**
	GEOL	**2018**	**90**	**74**	**16**	**5.7**	**82%**
	GENH	**2018**	**8**	**3**	**5**	**6.4**	**38%**

GENE

The percentage compliance has improved slightly since 2017. 30 late updates were checked, and the following issues were found:

- processing errors caused 19 late updates
- three ICPs were unmetered and notification of electrical connection was not received because the metering details are relied on for electrical connection and there were no meters
- one ICP was a switch in for the electrical connection date, then a late update to active from new connection in progress
- six ICPs had field update issues
- one ICP had an incorrect Ready date by the distributor.

Reporting is in place to identify status discrepancies, which assists with compliance.

GEOL

The percentage compliance has improved to 82% and the cycle time is slightly shorter. I checked 15 late updates and found the following:

- late field notification for 4 ICPs
- incorrect Active status for one ICP
- incorrect processing for 10 ICPs.

GENH

Eight new connections were identified in the event detail report. Five were updated late, four due to processing errors and one was late due to an investigation into the correct Active date.

There were some differences between the energisation date recorded by Genesis and the initial energisation date recorded by the distributor.

Retailer Code	Date discrepancies	Genesis incorrect	Distributor incorrect
GENE	18	2	16
GEOL	3	1	2
GENH	4	0	4

There were some differences between the Active date recorded by Genesis and the meter certification date.

Metering certification may not be the same day as energisation occurs. All differences were checked, and the meter certification date was correct in all cases.

I checked the notification process for Active dates and I found that the date is "derived" from other information rather than being supplied by the party conducting the initial electrical connection. Genesis is relying on a field called the "current read date" in the AMS portal or a date from the distributor. One example was a field called "field work completed on", which will not necessarily be the electrical connection date. Clause 10.33A(4) states that *"No participant may electrically connect a point of connection, or authorise the electrical connection of a point of connection, other than a reconciliation participant…"* Therefore, the electrical connection (livening) agent is conducting this work on behalf of Genesis. I recommend Genesis identifies who their electrical connection agents are and that they obtain electrical connection dates directly from that party.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 9 Schedule 11.1	I recommend Genesis identifies who their electrical connection agents are and that they obtain electrical connection dates directly from that party.	We will consider this bearing in mind those who complete field work are not always 'our' agents.	Investigating

Late updating to the Active status also leads to late nomination of the MEP in some cases. The MEP is normally nominated when the status is changed to "new connection in progress" but for GENE there were 71 late nominations. I checked 20 of these and found the following issues:

- seven Gentrack updates occurred prior to the ICPs being ready, therefore the nominations were not sent
- three ICPs had incorrect Ready dates
- ten late updates were due to processing errors.

20 GEOL nominations were late. I checked 15 and found that late field notification was the cause in all cases. This was mostly in regions where Genesis has a "blanket" agreement to accept all ICPs, therefore the distributors are creating ICPs without individual approval and Genesis only finds out at the end of the process. I recommend Genesis considers revoking the blanket approval and requires all distributors to get their approval before creating ICPs. Genesis will then have the ICPs in Gentrack and will be able to monitor them.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 9 Schedule 11.1	Remove blanket approval to accept all ICPs and require distributors to get approval from Genesis for each ICP.	We will consider this reccomendation.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.5 With: Clause 9 of schedule 11.1 From: 01-Mar-18 To: 30-Jun-18	Some late and incorrect status updates. Some late and incorrect MEP nominations. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate because there is room for improvement with regard to the identification of incorrect statuses. Settlement is not occurring in some cases until the status is corrected, therefore the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
Where we determine the first date on which there is consumption at a new ICP (from the read date field) we use that as the ACTIVE status date as the site is physically active at the time. This often shows as a descrepancy to Distributor energisation dates as they produce a date based on their field agents documentation.		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
New connections is an area we are continually trying to improve taking into account the variations of procedure across the different networks. We will highlight outcomes to an automation (business improvement) squad in place to ensure some focus on new connections space. The single incorrect status for GEOL was prior to the migration to Gentrack billing system and was a a single user error. With migration the Gentrack controls that have applied to GENE now apply to GEOL	30 November 2018	

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

Code reference

Clause 9 (1(k) of Schedule 11.1

Code related audit information

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

Audit observation

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

Audit commentary

GEOL has 10 ICPs with unknown ANZSIC codes. I checked google streetview and the business type could be determined for one and nine were residential. I checked a further 115 ICPs and the ANZSIC codes appeared to be possibly incorrect for 14.

GENE has four ICPs with unknown ANZSIC codes. I checked google streetview and the business type could be determined for one and three appear to be residential. I checked a further 266 ICPs and the ANZSIC codes appeared to be possibly incorrect for 37.

GENH has 26 ICPs with unknown ANZSIC codes. I checked google streetview and the business type could be determined for 21 ICPs. I checked a further 93 ICPs and the ANZSIC codes appeared to be possibly incorrect for 27.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.6 With: Clause 9(1)(k) of schedule 11.1 From: 01-Aug-17 To: 23-Aug-18	Some incorrect ANZSIC codes. 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	I've rated the controls because it appears there are improvements that can be made to the process for correctly identifying ANZSIC codes. There is no impact on settlement outcomes from incorrect ANZSIC codes but there is a low impact on the Electricity's reporting accuracy, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
For 40 ICPS (of approximately 500,000 Genesis Energy Limited ICPs) with an unknown ANZSIC code, we will correct.	30 September 2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
We will double check out onboarding processes to ensure process put in place in the past to prevent the use of unknowns (particularly for GENE and GEOL) are not being by passed.	30 September 2018	

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

Code reference

Clause 9(1)(f) of Schedule 11.1

Code related audit information

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

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

Audit observation

The process to manage unmetered load was examined. The list file as at July 2018 was examined to identify any ICPs where:

- Unmetered load is identified by the Distributor, but none is recorded by Genesis
- Genesis' unmetered load figure doesn't match with the Distributor's figure (where it's possible to calculate this if the Distributor is using the recommended format) and the variance is greater than 0.5 kWh per day. 0.5 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 0.5 kWh per day.

Audit commentary

GENE

A Review of the registry list identified two ICPs with no trader unmetered load details or daily kWh recorded on the registry (ICPs 1002037145LC66D and 1002042462LCE6E). GENE confirmed both ICPs were unmetered speed cameras and the distributor's load information is incomplete. GENE updated the load to 2.4 kWh per day effective from their first day of responsibility, and the consumption will be correctly recorded in revision submissions. This is recorded in **section 8.1.**

The 2017 audit found no unmetered load had been reported from 2013 to 2017 for ICP 1000002777BP0EA. The ICP was checked during the 2018 audit, and I found a correction had been processed and all consumption was captured within the 14-month period. Ongoing submissions for the ICP are correct. This is recorded in **section 8.1**.

All GENE unmetered load new connections, or capacity changes require an application to GENE and the new connections form contains a specific field for unmetered load. All new connections result in an "outbound" call to the customer for registration purposes and if unmetered load information needs to be verified it is dealt with during this call. On other occasions, a call may need to be made to the electrician to gain additional details. The registry validation processes include checks of the accuracy of unmetered load.

Analysis of the GENE list file found 3,459 ICPs with unmetered load indicated of which the below errors were identified:

- 434 ICPs where GENE has unmetered load recorded and the Distributor has none.

- 10 ICPs with the Distributor recording unmetered load but GENE has none recorded. 9 of these are not unmetered and the distributor's field is incorrect. One is unmetered, and Genesis has now populated the unmetered load details backdated to December 2017.
- There were 26 GENE ICPs where the daily unmetered kWh was different to the distributor's field by more than 0.5kWh per day. 6 ICPs are small DUML without databases. 11 were corrected during the audit. 9 are still being investigated.

GEOL

Examination of the list file found 159 active ICPs have unmetered load recorded, excluding shared unmetered load. The Distributor details for the majority of these did not contain sufficient details to confirm the UML. There were 9 ICPs where the Distributor has unmetered load recorded but GEOL has none. These have all now been updated. All five where the load could be checked against the Distributors load (where populated in the recommended format) were found to be correct.

GENH

Analysis of the GENH list file only found one query. There is one ICP with unmetered load. I confirmed that NHH submission is occurring out of Derive.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.7 With: Clause 9(1)(f) of Schedule 11.1 From: 16-Jun-12 To: 17-Aug-17	Incorrect unmetered details for 21 ICPs. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are generally strong in this area. Improvements are now in place to ensure these issues are identified. The impact on settlement is minor, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
As noted in body of audit above, remainder 9 ICPs are under investigation to determine correct load.	31 October 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Continuation of the improved identification of differences in the belief of UM loads at ICPs.		

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

Code reference

Clause 17 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

An event detail report for the audit period was reviewed, to identify all changes to active during the audit period.

The process for the management of ICP reconnection and new connections was examined. The event detail report for the audit period was analysed and the findings in relation to the timeliness of updates to registry are recorded in **sections 3.3** and **3.5**.

Audit commentary

The status is updated to active when a new connection is completed, or an ICP is reconnected on switching in.

Gentrack will not allow more than one party per ICP, nor will it allow an ICP to be set up without either a meter, or if it is unmetered, the daily kWh. The metering records are the responsibility of the MEP to update to the registry.

Non-compliance is recorded in **section 3.5** for one incorrect status for GEOL, which causes non-compliance with this clause as well.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.8 With: Clause 17 of schedule 11.1 From: 01-Mar-18 To: 30-Jun-18	One incorrect status update. Potential impact: Medium 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 because they identify incorrect statuses but there can be some improvement in the timeliness of corrections. Settlement is not occurring in some cases until the status is corrected, but only one example was identified therefore the audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
Refer 3.5 above.			Investigating
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Refer 3.5 above			

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

An event detail report for the audit period was reviewed, to identify all changes to inactive during the audit period.

The process for the management of ICP disconnection was examined. The event detail report for the period 01/03/18 to 30/06/18 was analysed and the findings in relation to the timeliness of updates to registry is recorded in **section 3.3**.

Audit commentary

Several issues were found with incorrect inactive statuses. They are recorded below.

- In **section 8.1** it is recorded that there are 10 GENE ICPs and 10 GEOL ICPs incorrectly at the inactive status where consumption has occurred.
- In **section 3.3** it is recorded that there are 19 ICPs at inactive ready for decommissioning and they should be inactive vacant.
- In **section 2.1** it is recorded that there are 44 GENE ICPs and 5 GEOL ICPs at new connection in progress with the initial electrical connection date populated. Most of the GENE examples appear to be due to the new connection task being closed without the "Active" status being changed in Gentrack. Two of the GEOL ICPs appear to be created in error and should be decommissioned. GEOL has not requested electrical connection for the other three. All 49 ICPs need to be investigated and updated.
- There are three GEOL ICPs remotely disconnected, but the inactive vacant code has been used.

Genesis does not update the registry for credit disconnections at the time of the disconnection. If the ICP is reconnected the registry does not record the period of disconnection. If there is no contact from the customer, the status may be changed in the future and will be backdated to the actual disconnection date.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.9 With: Clause 19 of schedule 11.1 From: 01-Jul-17 To: 30-Jun-18	Some incorrect inactive statuses. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate because there is room for improvement with regard to the identification of incorrect statuses. Settlement is not occurring in some cases until the status is corrected, therefore the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer to 2.1 and 3.3 above. The vacant ICPs with consumption will have status corrected back dated to date that first indicates consumption.	30 September 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vacant consumption process was amended recently to correct status at first indication of consumption. This will be checked to ensure the incorrect status found in audit were prior to change.	30 September 2018	

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

Code reference

Clause 15 Schedule 11.1

Code related audit information

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

Audit observation

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

Audit commentary

Genesis stated that they review lists from Distributors when they are received. Genesis also has reporting out of Gentrack for ICPs at "New" or "Ready" for long periods. This reporting does not include ICPs Genesis has not been notified about, as discussed in **section 3.5**. I asked Genesis to run registry reports for GENE and GEOL for ICPs where they were the proposed trader. I evaluated the reports for ICPs created prior to 2017 and found 35 GENE and 2 GEOL ICPs. A check of 17 found that they were not set up in Gentrack, or they were cancelled in Gentrack. I recommend Genesis runs this list monthly and checks all records to identify ICPs created in error and genuine ICPs they don't know about.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 15 Schedule 11.1	Run a monthly list from the registry of all ICPs where GENE or GEOL are the proposed trader to ensure Gentrack records align.	We will look at this and how easily it can be instigated.	Investigating

Audit outcome

Compliant

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

Code reference

Clause 10.22(1)(a)(i)

Code related audit information

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

Audit observation

The process to manage a change of MEP on an existing ICP was examined.

An event detail report for the period 01/03/18 to 30/06/18 was reviewed and the nomination date was compared to the metering event effective date to identify any ICPs that were not nominated within five business days.

Audit commentary

Analysis found the MEP was not always nominated within five business days of the event date.

There were 485 late nominations for GENE (27.5%) and 603 for GEOL (81%).

There is a weekly list sent from AMS where they have installed metering, but the nomination has not been received. Validation is in place to check for metering records returned which are different to the proposed MEP. GEOL updates are manual and there are sometimes delays with this. Some of the MEP changes result from switches in from Trustpower where LMGL is the meter owner and Contact is the MEP and there is an agreement to nominate LMGL as the MEP at the time of switch.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.11 With: Clause 10.22(1)(a)(i) From: 01-Mar-18 To: 30-Jun-18	Backdated MEP changes. 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	A larger proportion of MEP nominations were processed late this year. Controls are recorded as moderate because there is room for improvements in the timeliness of processing. There is a minor impact on other participants therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
NO immediate actions required as a correct nominations in place albeit late.		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will review MEP change nomination process for improvements where possible to resolve the resource tensions that give rise to the late nominations.	1 January 2019	

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 Genesis deem all conditions to be met. A sample of five ICPs using the typical sampling methodology were checked to confirm that these were notified to the registry within two business days.

Audit commentary

Genesis' processes are compliant with the requirements of the Section 36M of the Fair Trading Act 1986. The withdrawal process is used if the customer changes their mind. Customers are advised of their responsibilities in relation to this matter.

The event detail report was examined in relation to Genesis as the gaining trader for a sample of five NHH standard switches for GEOL, and five NHH standard switches for GENE. The registry was informed via the NT file within two business days of all conditions in relation to the agreement being met for all ICPs.

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 the audit period was reviewed to identify AN files issued by Genesis during the audit period. A sample of ANs with each acknowledgement code were reviewed to determine whether the codes had been correctly applied.

The switch breach history report for the audit period was reviewed and showed no late AN files.

The event detail report for the period March to June 2018 was analysed to assess compliance with the requirement to set event dates.

Audit commentary

GENE

No late AN files for transfer switches were identified on the switch breach history report for GENE.

I checked two of each type of AN code and they were all recorded correctly.

Analysis of the event detail report showed that 98.4% of event dates were within five business days. None were over 10 days.

GEOL

No late AN files for transfer switches were identified on the switch breach history report for GEOL.

Analysis of the event detail report showed that 67% of event dates were within five business days. None were over 10 days.

I checked five recent AN files with a response code of AA and I found that they were all correct. The AD code is now being used with GEOL ICPs being in Gentrack. Four of five ICPs with the OC code were incorrect. These were vacant sites with "the occupier" moved in. Five AN files incorrectly had CO recorded when they should have had AA. Gentrack will provide the correct codes in future.

No other response codes were used.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.2 With: Clause 3 of schedule 11.3 From: 01-Mar-18 To: 30-Jun-18	Incorrect AN response codes for GEOL. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	The controls at the time of the audit are strong, now that all ICPs are in Gentrack, which is correctly configured. There is only a minor impact due to incorrect AN codes. The audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
No action to correct AN code.			Cleared
Preventative actions taken to ensure no further issues will occur		**Completion date**	
As noted in audit GEOL switching now has same controls in Gentrack as GENE		13 July 2018	

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 the period March to June 2018 was reviewed, to identify CS files issued by Genesis during the audit period.

A sample of ten standard switch CS files were reviewed to determine whether the data provided was complete and accurate. The sample included meters with estimated and actual readings.

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

Audit commentary

GENE

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

I checked the content of five CS files and they were all accurate.

I checked 10 of 3,215 ICPs (TR and MI switches) where the average daily consumption was zero. Zero was correct in all cases.

I checked 5 of 21 ICPs with negative consumption and they were all correct. Two MI CS files with negative consumption were incorrect as recorded in **section 4.10**. I recommend Genesis reports on negative consumption in CS files in case corrections are required.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 5 Schedule 11.3	Monitor negative daily consumption in CS files.	We will look at including these in switching exceptions.	Investigating

I checked all 15 CS files where the average daily consumption was over 600 kWh per day. One was incorrect.

GEOL

No late CS files for transfer switches were identified on the switch breach history report.

The accuracy of the content of CS files was confirmed by checking a sample of records in GEOL's database. The content checked included:

- correct identification of meter readings and correct date of meter readings
- accuracy of meter readings
- accuracy of register content; and
- accuracy of average daily consumption.

Five CS files were examined for accuracy. They were all accurate.

I checked 10 of 26 CS files where the average daily consumption was zero and all 10 where the average daily consumption was more than 300. All 10 with zero consumption were correct. Nine of 10 with high consumption were incorrect.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.3 With: Clause 5 of schedule 11.3 From: 01-Aug-16 To: 31-Jul-17	Incorrect average daily consumption for 1 GENE file and 9 GEOL files Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because there is room for improvement even though only a very small number of issues were found. There is a minor impact due to incorrect CS file content codes and late files because the other traders may rely on the average daily consumption for the first bill. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
No action to change data sent in CS files.		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
For the single incorrect GENE ICP we will investigate to determine why it returned a high result. Not that GEOL errors were under previous billing system and will now come under Gentrack controls.	31 October 2018	

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

Code reference

Clause 6(1) and 6A Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

The process for the management of read requests was examined.

The event detail report for the period March to June 2018 was analysed to identify all read change requests and acknowledgements during the audit period.

The switch breach history report for the audit period was reviewed, and no late read change requests or acknowledgements were identified for transfer switches.

A sample of ten read change requests from the event detail report was selected using the diverse sample methodology.

25 read change rejections were selected from the event detail report using the diverse sample methodology. The sample covered a range of traders.

Audit commentary

GENE

When a high or low read is identified through the read validation process for a new switch in, the ICP is investigated to determine whether a read change is required. No data accuracy issues were identified for transfer read change requests or acknowledgements.

GENE had 13 late RR files recorded in the switch breach report. Late files were due to delays in getting the first meter reading, or due to time consuming investigations.

GEOL

When a high or low read is identified through the read validation process for a new switch in, the ICP is investigated to determine whether a read change is required. No data accuracy issues were identified for transfer read change requests or acknowledgements.

GEOL had eight late RR files recorded in the switch breach report. Late files were due to delays in getting the first meter reading, or due to time consuming investigations.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.4 With: Clause 6(1) and 6A Schedule 11.3 From: 01-Aug-17 To: 31-Jul-18	13 late RR files for GEOL. 6 late RR files for GENE. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are strong because the process is sound and potentially incorrect readings are investigated as soon as possible. There is a minor impact on other traders and customers because rebilling has to occur. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
As submission of RR files is confirmation of the investigation and agreement of read amendment, notification of and initiation of read review process (generally by email, telephone) will have occurred within the code timeframes.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No change to procedure anticipated.		

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

Code reference

Clause 6(2) and (3) Schedule 11.3

Code related audit information

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

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

Audit observation

The process for the management of read requests was examined. The event detail report was used to identify rejected RR files from HHR only traders. A sample of these were checked to ensure the rejections were genuine.

Audit commentary

GENE

20 rejections were checked; a combination of TR and MI switches. This clause only applies when the losing trader (GENE) trades as NHH and the gaining trader trades as HHR. GENE traded all 20 ICPs as HHR therefore the clause does not apply. However, I still checked the sample to see if any issues were present. GENE's reading was confirmed as correct for all 20 examples.

GEOL

The following issues were found when examining the 12 rejected RR files:

- GEOL's readings were correct for seven
- GEOL should have accepted five changes, three were TR switches (the differences were between one and three kWh but the Code still requires GEOL to accept the read changes).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.5 With: Clause 6(2) and (3) Schedule 11.3 From: 26-Mar-18 To: 08-May-18	3 GEOL RR files incorrectly rejected. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**

Low	The controls for GEOL are strong because the process is sound in most cases. There is a minor impact on settlement, other traders and customers because the other trader is likely to start billing on a different read than GEOL's final read. The audit risk rating is low.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
Re-iteration of clause requiring acceptance of changes less than 200kw when switching from NHH to HHR submitting traders.	30 August 2018	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Audit commentary

Genesis confirms that no disputes have needed to be resolved in accordance with this clause. Genesis understands the requirements of 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 Genesis deem all conditions to be met. A sample of five ICPs using the typical sampling methodology were checked to confirm that these were notified to the registry within two business days.

Audit commentary

All contracts are loaded within two business days of receipt. All NT files were sent on the same day as they were loaded. The same process is used for both GENE and GEOL. GENH sends the NT on the same day the contract is loaded.

Audit outcome

Compliant

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

Code reference

Clause 10(1) Schedule 11.3

Code related audit information

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

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

Audit observation

An event detail report for the period March to June 2018 was reviewed to identify AN files issued by Genesis during the audit period. A sample of two ANs (or all if less than three were available) with each acknowledgement code were reviewed to determine whether the codes had been correctly applied.

The switch breach history report for the audit period was reviewed and showed no late AN files.

Audit commentary

GENE

No late AN files for transfer switches were identified on the switch breach history report for GENE.

I checked two of each type of AN code and they were all recorded correctly.

GEOL

No late AN files for transfer switches were identified on the switch breach history report.

I checked two AN files with a response code of AA where AMI metering was installed and I found that they should have had AD for advanced metering.

I checked five AN files with a response code of OC and two should have been AA. OC is used for vacant properties, because "the occupier" is "moved in" to the account so that meter reading, reconciliation and credit processes can continue as normal. The address is automatically scheduled for a disconnection once five business days have elapsed. One ICP with a response code of CO appeared to be correct.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.8 With: Clause 10(1) of schedule 11.3 From: 01-Mar-18 To: 30-Jun-18	Incorrect AN response codes for GEOL. Potential impact: None Actual impact: None Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls at the time of the audit are strong, now that all ICPs are in Gentrack, which is correctly configured. There is only a minor impact due to incorrect AN codes. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
No action to change data in AN files.		Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
GEOL switch files now created under Gentrack automation rules.	13 July 2018	

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

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

Audit commentary

GENE

Review of the event detail report for GENE showed no ICPs where the switch event date was more than 10 days after the date the request was received.

GEOL

Review of the event detail report for GEOL showed no ICPs where the switch event date was more than 10 days after the date the request was received.

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 the period March to June 2018 was reviewed to identify CS files issued by Genesis during the audit period. A sample of five CS files were reviewed to determine whether the content was complete and accurate. The sample included meters with estimated and actual readings.

The switch breach history report for the audit period was reviewed and showed some late CS files for move in switches.

Audit commentary

GENE

I checked the accuracy of CS files for five ICPs and they were all correct.

I checked 10 of 3,215 ICPs (TR and MI switches) where the average daily consumption was zero. Zero was correct in all cases.

I checked 5 of 21 ICPs with negative consumption. Two appear incorrect and it appears there may be meter reading errors present. I recommend Genesis reports on negative consumption in CS files in case corrections are required.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 11 Schedule 11.3	Monitor negative daily consumption in CS files.	We will look at including these in switching exceptions.	Investigating

I checked all 15 CS files where the average daily consumption was over 600 kWh per day. Four were incorrect.

The switch breach history report showed 189 late CS files, once I had filtered out the errors.

GEOL

The accuracy of the content of CS files was confirmed by checking a sample of records in GEOL's database. The content checked included:

- correct identification of meter readings and correct date of meter readings
- accuracy of meter readings
- accuracy of register content; and
- accuracy of average daily consumption.

Five CS files were examined for accuracy. One had an estimate labelled as actual and one had an incorrect meter reading.

I checked 10 CS files where the average daily consumption was zero and four where the average daily consumption was more than 300. The field was correct for those with zero but the four with high consumption were all incorrect.

The switch breach history report showed seven late CS files.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 11 of schedule 11.3 From: 01-Aug-17 To: 31-Jul-18	Incorrect CS content for GEOL. 7 late CS files for GEOL. Incorrect CS file content for GENE. 189 late CS files for GENE. 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 because improvements are needed to achieve compliance. The impact on other participants is minor. Gaining traders may place reliance on readings labelled as A when they are in fact estimates. Late CS files have a minor impact on other traders. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
No action to be completed on late files. Daily average calculations addressed above.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
196 late files over the period considering the total number processed indicated true exceptions. We do not anticipate any change to procedure.		

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

Code reference

Clause 12 Schedule 11.3

Code related audit information

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

- *if the switch meter reading established by the gaining trader differs by less than 200 kWh from that provided by the losing trader, both traders must use the switch event meter reading provided by the gaining trader (clause 12(2)(a)); or*
- *if the switch event meter reading provided by the losing trader differs by 200 kWh or more from a value established by the gaining trader, the gaining trader may dispute the switch meter*

reading. In this case, the gaining trader, within four calendar months of the actual event date, must provide to the losing trader a changed validated meter reading or a permanent estimate supported by two validated meter readings and the losing trader must either (clause 12(2)(b) and clause 12(3)):

- *advise the gaining trader if it does not accept the switch event meter reading and the losing trader and the gaining trader must resolve the dispute in accordance with the disputes procedure in clause 15.29 (with all necessary amendments) (clause 12(3)(a)); or*
- *if the losing trader notifies its acceptance or does not provide any response, the losing trader must use the switch event meter reading supplied by the gaining trader (clause 12(3)(b)).*

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

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

Audit observation

The process for the management of read requests was examined.

The event detail report for the period March to June 2018 was analysed to identify all read change requests and acknowledgements during the audit period.

The switch breach history report for the audit period was reviewed, and no late read change requests or acknowledgements were identified for transfer switches.

A sample of ten read change requests from the event detail report were selected using the diverse sample methodology.

A sample of read change rejections were selected from the event detail report using the diverse sample methodology. The sample covered a range of traders.

Audit commentary

GENE

The switch breach history report showed 42 late RR files for a move in switch. The read change was requested as soon as GENE received two actual readings for the ICP.

No data accuracy issues were identified for MI read change requests or acknowledgements. GENE genuinely rejected some RR reads.

GEOL

The switch breach history report showed 19 late RR files for a move in switch. The read change was requested as soon as GEOL received two actual readings for the ICP.

The following issues were found when examining the 12 rejected RR files:

- GEOL's readings were correct for seven
- GEOL should have accepted five changes, two were MI switches (the differences were between one and three kWh but the Code still requires GEOL to accept the read changes).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.11 With: Clause 12 of schedule 11.3 From: 01-Aug-17 To: 31-Jul-18	19 late RR files for GEOL. 42 late RR files for GENE. 2 GEOL RR files incorrectly rejected. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are strong because the process is sound and potentially incorrect readings are investigated as soon as possible. There is a minor impact on other traders and customers because rebilling has to occur. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer to 4.4 and 4.5 above		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 13 Schedule 11.3

Code related audit information

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

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

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

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

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

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

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

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

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

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

Audit observation

The event detail report and switch breach report were analysed to identify all switch files sent during the audit period.

The HH switch process was examined and I checked all 18 backdated NT files.

Audit commentary

The registry was informed via the NT file within two business days of all conditions in relation to the agreement being met for 17 of 18 ICPs. The NT was sent late for ICP 1000015708BP6E8.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.12 With: Clause 14 of schedule 11.3 From: 01-Aug-17 To: 31-Jul-18	The NT was sent late for ICP 1000015708BP6E8. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are strong. This was an isolated example. There was no impact on settlement, billing or other participants. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
No action on late NT		Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
An isolated example, no change to procedure anticipated.		

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 the audit period was reviewed to identify AN files issued by GENH during the audit period. They were all correctly sent with the AA code.

The switch breach history report for the audit period was reviewed and showed no late HH AN files.

Audit commentary

The content of a sample of five AN files was reviewed. All switch response codes provided were correct.

There were no late AN files.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

The event detail report and switch breach report were analysed to identify all switch files sent during the audit period.

A sample of five HH switch CS files were reviewed to determine whether the data provided was complete and accurate.

The switch breach history report for the audit period was reviewed and showed no late CS file for a HH switch.

Audit commentary

The content and timeliness of HH switch files is compliant.

Audit outcome

Compliant

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

Code reference

Clauses 17 and 18 Schedule 11.3

Code related audit information

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

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

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

Audit observation

The event detail report was analysed to identify all switch withdrawal and acknowledgement files sent during the audit period.

All withdrawal requests rejected by Genesis were reviewed, and a typical sample of five withdrawal requests accepted by Genesis were reviewed.

A sample of withdrawal requests issued by Genesis were selected using the diverse characteristics method, to cover three (or all if less than that three were available) examples for each reason request used during the period.

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

Audit commentary

GENE

I reviewed 10 withdrawal requests rejected by GENE, and found they were all correct.

I reviewed 21 withdrawal requests and checked the reason codes. I found valid codes were used in all cases.

I checked 20 examples where GENE NW files had been rejected. There were various reasons with the most common one being "no customer to bill". It does not appear that there are any problems with GENE's NW process.

GEOL

I reviewed 10 withdrawal requests rejected by GEOL, and found they were all correct.

I reviewed 20 withdrawal requests and checked the reason codes. I found valid codes were used in all cases.

I checked 20 examples where GEOL NW files had been rejected. There were various reasons with the most common one being "no customer to bill". It does not appear that there are any problems with GEOL's NW process.

GENH

GENH did not reject any NWs.

I reviewed 13 withdrawal requests and checked the reason codes. I found valid codes were used in all cases.

I checked three examples where GENH NW files had been rejected. GENH had sufficient reasons at the time to send the NWs.

No late notifications of withdrawal were identified on the switch breach report.

Audit outcome

Compliant

4.16. Metering information (Clause 21 Schedule 11.3)

Code reference

Clause 21 Schedule 11.3

Code related audit information

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

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

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 11.15AA to 11.15AB

Code related audit information

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

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

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

Audit observation

The Electricity Registry switch save protected retailer list was examined to confirm that none of the Genesis codes are save protected.

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

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

Audit commentary

Genesis confirmed the policy that they contact customers who are switching out to confirm that the switch request is valid, but do not offer enticements for the customer to remain with Genesis. There was a breach in relation to this clause, but it does not appear to be a widespread issue.

I checked the event detail report for all withdrawn switches from the audit period. There were no switches that were withdrawn with the code "CX" applied prior to the 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

A registry list file was reviewed for the audit period to confirm the accuracy of shared unmetered load daily kWh.

I reviewed processes to identify shared unmetered load.

Audit commentary

All GENE shared unmetered load is recorded correctly.

Four GEOL ICPs did not have shared unmetered load recorded. These have all been resolved.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.1 With: Clause 11.14 From: 19-Dec-14 To: 31-Aug-17	Incorrect shared unmetered load for 4 GEOL ICPs. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are strong now that all ICPs are managed in Gentrack. The impact on settlement is very small so the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
All ICPs correct at time of audit	15 August 2018	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Gentrack Shared UML controls in place now for GEOL.	13 July 2018	

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

A registry list file was reviewed for GENE and GEOL to identify ICPs with unmetered consumption exceeding 6,000 kWh per annum where they were not DUML.

A check was also conducted of unmetered ICPs where the consumption was between 3,000 and 6,000 kWh per annum to ensure they were approved load types.

Audit commentary

GENE has 19 ICPs with consumption over 6,000 kWh which are not included in the DUML audit regime. They are shown in the table below.

ICP	Annual Consumption	Genesis Comments	Veritek Comments
0000011090WE401	18,615	Alandale retirement village unmetered street lights	Not included in DUML audit regime
0000011100WE2E2	6,570	Aparangi retirement village unmetered street lights	Not included in DUML audit regime
0000011104WE3E8	9,417	Waikato racing club unmetered streetlight.	Not included in DUML audit regime
0000558236NRF85	15,330	Sewerage pumps.	Registry indicates 82. Not included in DUML audit regime
1001101874UN586	30,660	Traffic lights.	Not included in DUML audit regime
0004451002MLF94	17,265	WOODBOURNE LEADLIGHTS, JACKSONS ROAD, WOODBOURNE, BLENHEIM, Airways corporation option to meter.	
0000455891UN0A2	38,993	Illuminated sign for a commercial business.	Nulite signs, not included in DUML audit regime
0000081066CPA8F	9,746	Vacant but submission occurs. Looks like NZTA Manawatu	Not included in DUML audit regime
0000179860TR9B6	16,545		Looks like lights at Wellington airport. Not included in DUML audit regime
0005000772HBA61	7,643		Under veranda lighting.
0016096032EL6DD	25,185		Possibly Coastlands mall carpark. Being billed to one restaurant.
0016097099EL1B6	28,653		Levin mall community lighting.
0088051701WM2E0	8,461		Appears to be DUML.
0088055801WMB6F	8,030		Whakapapa village lights.
0089342001PCB9C	6,570		Possibly state highway lights.
1001243372UN366	60,721		Westgate Mall, carpark lighting? Or could be road lighting.
0000100028UN5CB	28,875		Paremoremo streetlights not included in DUML audit regime.
0000562361UN29B	25,316	OJI Fibre solution Kinleath streetlighting - Should be DUML	Not included in DUML audit regime.
0002270002ML907	6,570		Telecommunications cabinet.

GENE has nine ICPs with consumption between 3,000 and 6,000 kWh per annum where the load type is not clear in the registry. Genesis has detail in Gentrack and I recommend the registry is populated with this information. The ICPs are shown below with the findings from the audit.

ICP	Annual consumption	Comments
0000010993HB626	4,380	HawkesBay reg council pumps and gates
0000010994HBBEC	4,380	HawkesBay reg council pumps and gates
0000408270HBF0C	4,380	HawkesBay reg council Telemetry sites
0000562357UN4EC	3,986	PUMP STN WAITEKAURI ROAD - Cyprus gold
0000775915HB290	4,380	HawkesBay reg council Telemetry sites
0004585847HBCB6	4,380	HawkesBay reg council Telemetry sites
0008112945HB811	4,380	HawkesBay reg council Telemetry sites
0008506001HB569	4,380	HawkesBay reg council Telemetry sites
0040914837HB586	4,380	HawkesBay reg council Telemetry sites

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 10.14 (2)(b)	Populate unmetered details for ICPs with consumption between 3,000 and 6,000 kWh per annum.	Agree, will populate description information we hold.	Identified

GEOL has three ICPs with consumption between 3,000 and 6,000 kWh per annum and these are all lighting.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.2 With: Clause 10.14 (2)(b) From: 01-Aug-17 To: 31-Jul-18	Unmetered load over 6,000 kWh per annum. Potential impact: Medium Actual impact: Unknown Audit history: Multiple times Controls: Weak Breach risk rating: 3

Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as weak because the issues do not appear to have been resolved over an extended period. The impact on settlement is unknown because the load has not been checked but submission is occurring. I have recorded the audit risk rating as low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
Investigation work and correction (inclusion in DUML or metering) work continues.		1 March 2019	Investigating
Preventative actions taken to ensure no further issues will occur		**Completion date**	
A control will be put in place to capture 'new' entries of over 6,000 kWh.		30 September 2018	

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

Code reference

Clause 10.14 (5)

Code related audit information

If the unmetered load limit is exceeded the retailer must:

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

Audit observation

A registry list file was reviewed for GENE and GEOL to identify ICPs with unmetered consumption exceeding 6,000 kWh per annum where they were not DUML.

Audit commentary

As recorded in **section 5.2**, there are 19 ICPs where the 6,000 kWh per annum threshold has been exceeded and remedial actions are not complete.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.3 With: Clause 10.14 (5) From: 01-Aug-17 To: 31-Jul-18	Unmetered load over 6,000 kWh per annum and not resolved within the allowable timeframes. Potential impact: Medium Actual impact: Unknown Audit history: Multiple times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as weak because the issues do not appear to have been resolved over an extended period. The impact on settlement is unknown because the load has not been checked. I have recorded the audit risk rating as low.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer 5.2 above		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 11 Schedule 15.3, Clause 15.37B

Code related audit information

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

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

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

Audit observation

Genesis is responsible for a large number of DUML databases. Most of these were all audited by Veritek during the audit period.

Audit commentary

The table below shows that improvements are required for all databases audited and that some databases have not been audited.

		Compliance Achieved (Yes/No)								
Database	DUML Audit completed 16A.26 and 17.295F	Deriving submission information 11(1) of schedule 15.3	ICP identifier 11(2)(a) of schedule 15.3	Location of items of load 11(2)(b) of schedule 15.3	Description of load 11(2)(c)&(d) of schedule 15.3	All load recorded in database 11(2A) of schedule 15.3	Tracking of load changes 11(3) of schedule 15.3	Audit trail 11(4) of schedule 15.3	Database accuracy 15.2 and 15.37B(b)	Volume information accuracy 15.2 and 15.37B(c)
NZTA Wairarapa	29/03/18	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Stratford DC	11/12/17	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
NZTA Waikato	17/05/18	No	No	No	No	No	Yes	No	No	No
Waimate DC	22/05/18	No	No	Yes	No	No	No	Yes	No	No
Hauraki DC	25/05/18	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Whangarei DC	23/05/18	No	Yes	Yes	Yes	Yes	No	Yes	No	No
Grey DC	14/05/18	No	Yes	Yes	No	No	Yes	Yes	No	No
NZTA Manawatu	29/03/17									
Central Hawkes Bay DC	19/03/18	No	No	Yes	No	Yes	Yes	Yes	No	No
Christchurch CC Traffic lights	08/05/18	No	No	Yes	Yes	Yes	No	No	Yes	No
Hastings DC	30/04/18	No	No	Yes	No	No	Yes	Yes	No	No
Horophenua DC	22/12/17	Yes	Yes	Yes	No	No	Yes	Yes	No	No
NZTA Northland	16/07/18	No	Yes	Yes	No	Yes	Yes	Yes	No	No

Wairoa DC	24/05/18	No	No	Yes	No	Yes	No	Yes	No	No
Western BOP DC	17/07/18	No	Yes	Yes	Yes	No	No	Yes	No	No
Kaipara DC	08/03/18	No	Yes	Yes	Yes	Yes	No	No	No	
Sth Taranaki DC	03/01/18	No	Yes	Yes	Yes	No	Yes	Yes	No	No
DOC Tekapo	24/04/17									
McKenzie DC	28/05/18	No	No	Yes	No	No	Yes	Yes	No	No
New Plymouth CC	26/03/18	No	Yes	Yes	No	Yes	No	Yes	No	No
Hamilton CC	23/05/18	No	Yes	Yes	Yes	No	No	Yes	No	No
Waikato DC	01/05/18	No	Yes	Yes	Yes	No	No	Yes	No	No
Waipa DC	23/05/18	No	Yes	Yes	Yes	No	Yes	Yes	No	No
Waimakariri DC	30/04/18	No	Yes	No	Yes	No	Yes	Yes	No	No
Kawarau DC	30/03/17									
Opotiki DC	30/03/17									
Whakatane DC	25/05/18	No	No	Yes	No	No	No	Yes	No	No
BOP East NZTA	25/05/18	No	Yes	Yes	No	No	No	Yes	No	No
Thames Coromandel DC	23/05/18	No	Yes	Yes	Yes	No	No	Yes	No	No
Marlborough	05/05/18	No	No	No	Yes	No	No	Yes	No	No

Far North DC	15/02/18	No	Yes	Yes	Yes	No	Yes	Yes	No	No
South Waikato DC	28/05/18	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Kiangaroa	None									
Napier CC	18/05/18	No	Yes	Yes	No	No	Yes	Yes	No	No
Central Otago DC	None									

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.4 With: Clause 11 Schedule 15.3 From: 01-Aug-17 To: 31-Jul-18	Distributed unmetered databases not accurate. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The effectiveness of the controls is recorded as weak because the issues do not appear to have been resolved over an extended period. The impact on settlement is major because the incorrect submission figures are major for some databases.

Actions taken to resolve the issue	Completion date	Remedial action status
Please refer to individual DUML audit responses previously (and ongoing) supplied to Authority.	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

6. GATHERING RAW METER DATA

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

Registry list files for GENE, GEOL and GENH were examined to determine whether any ICPs with generation were supplied during the audit period. Processes for distributed generation were reviewed.

Audit commentary

Metering installations installed

The new connection processes include a check that metering is installed before electrical connection occurs, and that any unmetered load is quantified. No submission information is determined using subtraction.

GENE

Distributed Generation

GENE's list file was examined. 3,119 active ICPs with distributed generation recorded by the distributor were identified.

Registry metering information is loaded into Gentrack when an ICP switches in. There is validation in place to identify ICPs with distributed generation possibly installed, but the remedial actions appear to be taking a long time.

163 NHH ICPs with distributed generation are recorded on the registry with profile RPS. This is recorded as non-compliance in **section 2.1**. GENE ran a query showing that 136 of the 163 had submission for generation against the EG1 profile. There are 27 ICPs where GENE needs to confirm if distributed generation is installed or not.

A sample of five of the 136 distributed generation ICPs with RPS profile on the registry were checked against the ICP level supporting data for the June 2018 AV080 submission. All five had their generation data reported with an EG1 profile. GENE advised that they update the profile on the registry once they have confirmation that distributed generation is installed. In some cases, the distributor updates their

generation fields when a request is received, rather than when installation is complete. The use of the EG1 rather than PV1 profile for solar generation is recorded as non-compliance in **section 12.7**.

Bridged meters

GENE provided the details of one the only meter identified as bridged to reconnect during the audit period. This is recorded as non-compliance below. A correction was appropriately processed for consumption during the bridged period as described in **section 8.1**.

GEOL

Distributed Generation

GEOL's list file was examined. 69 active ICPs with distributed generation recorded by the distributor were identified. Nine of the 69 ICPs do not have import/export metering.

There is validation in place to identify ICPs with distributed generation possibly installed but the remedial actions appear to be taking a long time.

All GEOL ICPs have RPS profile recorded on the registry. Genesis' submission process automatically corrects the profile to EG1 where a GEOL meter has flow direction 2 and consumption, and I viewed the code to confirm this process. The difference between the profiles used for submission and recorded on the registry is recorded as non-compliance in **section 2.1**. The use of the EG1 rather than PV1 profile for solar generation is recorded as non-compliance in **section 12.7**.

Bridged meters

GEOL did not identify any ICPs with bridged meters during the audit period. Processes to identify bridged meters are described in **section 9.5**.

GENH

Distributed Generation

All GENH ICPs have HHR profile recorded on the registry.

GENH's list file was examined. 77 active ICPs with distributed generation recorded by the distributor were identified. Ten of these do not have an "I" channel and are not included in the aggregates file; eight of these were recorded as non-compliance in the 2017 audit.

ICP	Generation date (or switch in date if later)	Comment
0006090168RNC40	01/08/14	Gifting has been notified
0007139792RN05D	01/06/17	Gifting has been notified
0427052565LCF1B	01/05/17	Gifting has been notified
0000130740WEA40	12/05/15	Gifting has been notified
0000601136HBB5D	01/01/17	Gifting has been notified
0006085016RNC43	01/08/14	Gifting has been notified
0006085121RNF75	01/08/14	Gifting has been notified
0007110201RN312	01/08/14	Gifting has been notified

ICP	Generation date (or switch in date if later)	Comment
0005876656RNF26	25/07/17	Notification is required
0006476414RNE04	01/02/18	Investigation required

Bridged meters

GENH did not identify any ICPs with bridged meters during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: Clause 10.13, Clause 10.24 and 15.13 From: Oct-17 To: Jan-18	**GENE** One meter was bridged during the audit period. While meters are bridged energy is not quantified in accordance with the code. 27 ICPs without DG quantified. **GEOL** 9 ICPs without DG quantified. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because improvements can be made with regard to remedial actions when DG is identified. Bridging should occur very rarely as 24-hour 7 day per week arrangements are in place for most soft reconnections. Bridging should only occur where communications do not allow remote reconnection and energy supply is urgently required for health and safety reasons. The impact on settlement is minor therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Profiles to updated for those missing the PV1 code	30 September 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Monthly control to match submission of import volumes with recorded profile codes on Registry.	30 September 2018	

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

Genesis is responsible for the GIPs shown in the table below.

Responsible party	Description	NSP	MEP	Reconciliation Type	Certification expiry date (NSP table)
GENE	HUNTLY	HLY2201GENEGG	GENE	GG	20/11/2020
GENE	RANGIPO	RPO2201GENEGG	GENE	GG	11/01/2021
GENE	TEKAPO A	TKA0111GENEGG	GENE	GG	7/02/2021
GENE	TEKAPO B	TKB2201GENEGG	GENE	GG	16/03/2021
GENE	TOKAANU	TKU0331GENEGD	GENE	GD	20/02/2021
GENE	TOKAANU	TKU2201GENEGG	GENE	GG	12/05/2019
GENE	TUAI	TUI1101GENEGG	GENE	GG	14/02/2021

Audit commentary

All points of connection have current certification and there is now a sound process to provide updates on time.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

Audit observation

Registry lists for GENE, GEOL, and GENH were reviewed to confirm the profiles used during the audit period.

Audit commentary

GENE

GENE uses the HHR, RPS, PV1, and EG1 profiles for metered ICPs. The CST, NST, RPS, SST and UNM profiles are used for unmetered load. These profiles do not rely on the use of control devices for reconciliation purposes.

GENH

GENH uses the HHR profile, which does not rely on the use of control devices for reconciliation purposes.

GEOL

GEOL uses the RPS profile, which does not rely on the use of control devices 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.

A sample of defective meters were reviewed, to determine whether the MEP was advised, and if appropriate action was taken.

Audit commentary

Defective meters are typically identified through the meter reading validation process, or from information provided by an agent, MEP, or customer.

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

No examples of defective meters during the audit period were provided for GENE, GEOL, or GENH. Processes to identify stopped and faulty meters are discussed further in **sections 9.5** and **9.6**.

It is likely there are many examples based on the results for similar sized retailers and I recommend Genesis develops reporting to identify trends, identify remedial actions and so the audit function can check for compliance.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 10.43(2) and (3)	Develop reporting for defective and bridged meter to identify trends, identify remedial actions and so the audit function can check for compliance.	Agreed, will also take into account proposed changes to bridged meter rules.	Identified

Audit outcome

Compliant

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

Code reference

Clause 2 Schedule 15.2

Code related audit information

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

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

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

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

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

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

2(6) – The interrogation systems must record:

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

Audit observation

The data collection process was examined.

- AMS collects HHR data for GENE and GENH.
- AMS collects NHH AMI data for GENE and GEOL.
- Wells collects manual NHH data for GENE and GEOL.
- HHR generation data is collected by Genesis using their Stark data collection system.

Data collection and clock synchronisation processes for MEPs and agents were reviewed as part of their own audits. Agents are to advise Genesis of clock synchronisation discrepancies and adjustments. I reviewed clock synchronisation event information received, and action taken as a result.

Clock synchronisation occurs within Stark for generation metering.

Audit commentary

GENE

All information used to determine volume is collected by agents. Agents and MEPs monitor clock synchronisation, this is covered as part of their audits.

Clock synchronisation event information is emailed to GENE, which includes details of the ICPs affected and the time difference. GENE confirmed that the emails normally state that no action is required but appropriate action is taken if necessary.

GEOL

All information used to determine volume is collected by agents. Agents and MEPs monitor clock synchronisation, this is covered as part of their audits.

GEOL receive a weekly email from AMS, which provides information on any ICPs where a time drift has been identified, and the time difference. GEOL advised that these emails normally state that no action is required but appropriate action is taken if necessary.

GENH

AMS' agent audit report confirms compliance.

Generation

Genesis synchronises STARK time to the server time, and this is synchronised against an internet time source at 30-minute intervals. During interrogation, a comparison occurs between data logger and STARK clocks. During the audit, the server time was compared to Stark time and they were the same.

If the time is out my more than five seconds, the channels are "disabled". To correct the time, the parameters are "opened" manually to allow data to be collected, then Stark will automatically synchronise the clock. I checked all recent reports and there were no time differences.

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. A sample of reads for ten ICPs each for GENE and GEOL were provided during Wells audit. These were traced through to GENE's Gentrack and Derive systems, and GEOL's Orion system.

Processes to provide meter condition information were reviewed as part of Wells' agent audit. Processes to review and action the condition information provided by Wells were walked through, including checking some examples.

Processes for customer and photo reads were reviewed.

Audit commentary

GENE

Labelling of meter readings

Readings are appropriately labelled. I checked ten readings received from Wells and five readings from the AMS data store to confirm the data in Gentrack and Derive matched the data in the files.

Review of meter condition information

Wells monitors meter condition as required by schedule 15.2 and provides meter condition information along with the daily reads. A monthly summary report containing missing seal and broken seal events is provided via email.

All meter condition information is loaded into MRI, which can be queried to view all notes for an ICP and is useful when resolving or investigating issues. The meter condition codes provided are allocated to work queues in Gentrack, to be reviewed and actioned by CSRs. I reviewed the following condition information provided by Wells and found it had been appropriately actioned by GENE:

- three examples where seals were not present or intact; and
- one example of tampering or damage.

Meter condition issues can also be identified through GENE's meter read validation process. CSR's can refer cases to revenue assurance for investigation.

Customer and photo readings

Customer provided readings and photo readings are appropriately recorded with a read type of customer or photo in Gentrack and Derive. One of the eight customer readings checked was classified as validated, although the read had not been validated against at least two actual reads from another source. This is recorded as non-compliance below.

GEOL

Labelling of meter readings

Readings are appropriately labelled. I checked ten readings received from Wells and five readings from the AMS data store to confirm the data in Orion matched the data in the files.

Review of meter condition information

Wells monitors meter condition as required by schedule 15.2 and provides meter condition information along with the daily reads. A monthly summary report containing missing seal and broken seal events is provided via email.

The meter condition information is bulk loaded as a memo against each affected ICP. The process has been updated since the 2017 audit, and all memos are now loaded and assigned to the appropriate work queue for action. I reviewed an example where seals were not present or intact and noted it had been actioned appropriately.

No examples of tampering, phase failure or electrically unsafe situations were identified for GEOL by Wells.

Meter condition issues can also be identified through GEOL's meter read validation process. CSR's can refer cases to GENE revenue assurance for investigation.

Customer and photo readings

Customer provided readings and photo readings are both sometimes recorded with a read type of actual. Four of the ten customer readings checked were classified as validated, although the read had not been validated against at least two actual reads from another source. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.6 With: Clause 3(1), 3(2) and 5 Schedule 15.2 From: 24-Oct-17 To: 14-Jul-18	**GENE** One customer read was treated as validated, when it had not been validated against at least two actual reads from other sources. **GEOL** Four customer reads were treated as validated, when they had not been validated against at least two actual reads from other sources. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are considered moderate because most of the customer readings checked were appropriately validated. Customer and photo reads usually only occur where it is not possible for the meter reader to gain access to perform a reading. There is potentially a minor impact on billing and settlement; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Re-iteration of definition of validated reads with staff. Investigation as to circumstances leading to 5 instances being noted as validated.	30 September 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Pending investigation above, 5 instances over period indicates no change to procedure required.		

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

GENE

NHH meter readings provided by agents are applied as at 2400hrs. Switch in readings are appropriately treated as if they have occurred at midnight on the switch in date. Application of reads was reviewed as part of the historic estimate checks, discussed in **section 12.11**.

A sample of NHH meter readings for 15 ICPs were checked from the read file to Gentrack and Derive. Reads were recorded as end of day reads in Gentrack and Derive.

When a NHH to HHR meter change occurs, the process used by Genesis is to "remove" the NHH meter in their system on the day before the physical meter change, which makes the NHH meter reading effective at 24:00 on that day. The day of the meter change is considered HHR all day. This process is employed because the registry won't allow two MEPs for the same day and it also ensures consumption information and ICP days aligns with the registry. Whilst this process achieves accuracy, non-compliance exists because the NHH meter reading is not applied at 2400 on the day of the reading. This matter is also relevant to decommissioned ICPs, where the day after the physical decommissioning is used to ensure the status aligns with the meter reading effective time (end of day).

GEOL

NHH meter readings provided by agents are applied as at 2400hrs. Switch in readings are appropriately treated as if they have occurred at midnight on the switch in date. Application of reads was reviewed as part of the historic estimate checks, discussed in **section 12.11**.

A sample of NHH meter readings for 15 ICPs were checked from the read file to Orion. Reads were recorded as end of day reads in Orion. Compliance is also confirmed for Gentrack.

Audit outcome

Compliant

Non-compliance	Description
Audit Ref: 6.7 With: Clause 6 Schedule 15.2 From: 01-Aug-17 To: 31-Jul-18	NHH meter readings not applied at 2400 on the day of the meter reading for NHH to HHR upgrades. Potential impact: None Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because the process achieves accuracy. There is no impact on settlement or other participants.

Actions taken to resolve the issue	Completion date	Remedial action status
Registry limitations pushes technical non compliance with code in respect of 24:00, but accuracy of total consumption and ICP days alignment is maintained.		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Strict alignment to code (removal and start dates on actual date of occurrence) is not possible while Registry restricts to single events per day. If proposed changes to allow intra day events on the Registry then we will adapt our procedure to suit.		

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.

Audit commentary

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

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

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

GENE

Within Gentrack, NHH ICPs with three account estimate reads in a row are directed to a work queue. Staff review the ICPs and decide whether a letter, phone call, or text is required to resolve the issue based on

the history and reason the ICP is unread. A letter is normally sent in the first instance. Account managed ICPs are referred to the account manager for action.

For AMI meters, staff processing the exception will send the ICP to the metering team's work queue to determine why reads are not being obtained, and to take action as required. ICPs may be moved to Wells' manual meter reading routes if communication issues are persistent.

A report of 91 ICPs not read during the period of supply was provided for ICPs with an end date between 2 June and 8 July 2018. Of these, 82 (90.1%) were supplied for less than 90 days. A sample of ten ICPs with the longest periods of supply were checked:

- for one ICP, a read was found to be obtained during the period of supply
- for the other nine ICPs, the best endeavours requirements were not met, and exceptional circumstances did not exist.

GEOL

For meters read by Wells, GEOL staff review the daily no read information provided. Action is taken where no reads can be obtained for the following reasons:

No read reason	Action taken
Incorrect details such as meter not found, premises not found, and wrong route.	Contact the customer for further information if needed and follow up with Wells.
Meter changed.	Request meter change paperwork from the MEP.
Dog notes.	Contact the customer for further information and to make arrangements as necessary. Update Orion's dog notes.

Other no read reasons were only investigated if there was time after dealing with the incorrect details, meter change and dog notes issues.

AMI meters with no actual reads for three months or more are identified through reporting and followed up with the MEP and/or moved to a manual meter reading route.

A report of 363 ICPs not read during the period of supply was provided for ICPs with an end date between 2 March 2017 and 23 July 2018. Of these, 304 (83.7%) were supplied for less than 90 days. A sample of ten ICPs with the longest periods of supply were checked:

- for three ICPs exceptional circumstances existed
- for one ICP reads had been received but were not loaded due to an issue with the customer account
- for the other six ICPs the best endeavours requirements were not met, and exceptional circumstances did not exist.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 01-Sep-17 To: 16-Aug-18	**GENE** For nine ICPs unread during the period of supply, exceptional circumstances did not apply, and the best endeavours requirement was not met. **GEOL** For six ICPs unread during the period of supply, exceptional circumstances did not apply, and the best endeavours requirement was not met. 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 moderate as they will ensure that most ICPs will receive a read during the period of supply. Some residual risk remains for ICPs with short periods of supply. The impact on billing and settlement is considered to be minor because a small number of ICPs are affected, and the period of supply is generally short.

Actions taken to resolve the issue	Completion date	Remedial action status
Bringing in of GEOL under same Gentrack controls has also presented opportunity to refine overall process to ensure greater compliance with changes to timing of entry into process and frequency of customer contacts. Also has reiterated with staff concerned to note actions taken in Billing system for evidence of process.	30 September 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Along with process changes noted above, reliance on manual meter reading continues to drop as reminder of legacy meters are displaced with AMI.	Ongoing	

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

Code reference

Clause 8(1) and (2) Schedule 15.2

Code related audit information

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

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

Audit observation

The meter reading process was examined. Monthly reports for the months of March to May 2018 were provided. I reviewed the sample of reports to ensure they met the report requirements and were submitted on time.

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

Audit commentary

GENE

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

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > 12 months	NSPs <100% read	ICPs unread for 12 months	Overall percentage read
Mar 2018	265	93	429	98.55%
Apr 2018	264	92	445	98.52%
May 2018	264	91	443	98.48%

The total quantity of unread ICPs continues to improve; the average number unread for 12 months per month has decreased by around 100 ICPs per month since the 2017 audit.

I reviewed ten ICPs not read in the previous 12 months as at May 2018 to determine whether exceptional circumstances exist, and if GENE had used their best endeavours to obtain readings:

- for two ICPs, the best endeavours requirement was met
- for eight ICPs the best endeavours requirement was not met, and exceptional circumstances did not exist.

GENE provides the meter reading frequency reports to the Market Administrator for GENE and GEOL. Report submissions for March to May 2018 were reviewed for GENE and GEOL, which confirmed that the reports were submitted on time and contained the required information.

GEOL

The monthly meter reading reports provided were reviewed.

Month	Total NSPs where ICPs were supplied > 12 months	NSPs <100% read	ICPs unread for 12 months	Overall percentage read
Mar 2018	192	41	111	99.83%
Apr 2018	192	40	99	99.85%
May 2018	190	38	104	99.84%

The total quantity of unread ICPs continues to improve; like GENE, the average number unread for 12 months per month has decreased by around 100 ICPs per month since the 2017 audit.

I reviewed ten ICPs not read in the previous 12 months as at May 2018 to determine whether exceptional circumstances exist, and if GEOL had used their best endeavours to obtain readings:

- for two ICPs exceptional circumstances existed
- for eight ICPs the best endeavours requirement was not met, and exceptional circumstances did not exist.

In the 2017 audit two issues with the report content were identified. These issues were followed up during the 2018 audit:

- ICPs read in the previous 12 months are now being correctly excluded
- unmetered ICPs were included in the report up to May 2018, because of the dummy meters set up to manage unmetered load; I confirmed that unmetered ICPs were excluded from June 2018 onwards.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.9 With: Clause 8(1) and (2) Schedule 15.2 From: 01-May-18 To: 31-May-18	**GENE** For eight ICPs unread in the 12 months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met. **GEOL** For eight ICPs unread in the 12 months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met. Unmetered ICPs were included in the meter reading frequency reporting up to May 2018. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	The issue relating to unmetered ICPs being included in the report has been cleared. Controls are rated as moderate because there is room to improve the processes for read attainment. The impact is low, because overall read attainment rates are reasonably high.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer 6.8 above		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 the months of March to May 2018 were provided.

A sample of NSPs with less than 90% of ICPs read in the previous four months were reviewed for each code to determine whether reasonable endeavours were used to attain reads, and if exceptional circumstances existed.

Audit commentary

GENE

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

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
Mar 2018	271	39	1815	95.06%
Apr 2018	271	34	1891	94.87%
May 2018	271	31	1885	94.76%

The total quantity of unread ICPs continues to improve; the average number unread for four months per month has decreased by around 350 ICPs per month since the 2017 audit.

I reviewed the process to determine whether exceptional circumstances exist, and if GENE had used their best endeavours to obtain readings for seven NSPs where compliance was not achieved in May 2018:

- for three of the affected ICPs I found that the best endeavours requirement was not met, and exceptional circumstances did not exist
- for the other ICPs the best endeavours requirement was met, or exceptional circumstances existed.

GEOL

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

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
Mar 2018	203	9	692	99.13%
Apr 2018	204	8	626	99.21%
May 2018	204	9	635	99.20%

The total quantity of unread ICPs has decreased slightly since the 2017 audit.

I reviewed the process to determine whether exceptional circumstances exist, and if GEOL had used their best endeavours to obtain readings for seven NSPs where compliance was not achieved in May 2018:

- two NSPs were affected by a report logic issue and were compliant
- for one ICP the best endeavours requirement was met, or exceptional circumstances existed
- for the other six affected ICPs I found that the best endeavours requirement was not met, and exceptional circumstances did not exist.

As discussed in **section 6.9**, the report logic has now been updated to exclude unmetered ICPs.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.10 With: Clause 8(1) and (2) Schedule 15.2 From: 01-May-18 To: 31-May-18	**GENE** For three ICPs unread in the four months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met. **GEOL** For six ICPs unread in the four months ended May 2018, exceptional circumstances did not apply, and the best endeavours requirement was not met. 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 there is room to improve the processes for read attainment. The impact is low, because overall read attainment rates are reasonably high.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer 6.8 above		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 AMS and Wells. The data interrogation log requirements were reviewed as part of the agent and MEP audits.

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 11(1) Schedule 15.2

Code related audit information

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

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

Audit observation

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

Generation data is sourced from the services access interface as required by the Code.

Audit commentary

GENE and GENH

Compliance with this clause has been demonstrated by AMS as part of their agent audits.

Generation

Generation data is sourced from the services access interface as required by the Code.

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 AMS. The interrogation data requirements were reviewed as part of their audit.

Generation data is collected by Genesis using their Stark system and the requirements of this clause were checked.

Audit commentary

GENE and GENH

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

Generation

Compliance with this clause has been demonstrated by Genesis for generation metering.

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 AMS. The data interrogation log requirements were reviewed as part of their audit.

Generation data is collected by Genesis using the Stark system. The interrogation log was checked as part of the audit.

Audit commentary

GENE and GENH

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

Generation

Compliance with this clause has been demonstrated by Genesis for the Stark system.

Audit outcome

Compliant

7. STORING RAW METER DATA

7.1. Trading period duration (Clause 13 Schedule 15.2)

Code reference

Clause 13 Schedule 15.2

Code related audit information

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

Audit observation

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

Audit commentary

GENE and GENH

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

Generation

A review of one generation read file confirmed that trading period duration is 30 minutes.

Audit outcome

Compliant

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

Code reference

Clause 18 Schedule 15.2

Code related audit information

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

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

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

Audit observation

Processes to archive and store raw meter data were reviewed. Raw meter data from at least 48 months prior was reviewed to ensure that it is retained.

MEPs and agents retain the raw meter data, and compliance was assessed as part of their MEP and agent audits.

Audit commentary

Compliance with this clause has been demonstrated by the MEPs and agents.

GENE

Review of audit trails in **section 2.4** confirmed that reads cannot be modified without an audit trail being created. Access to modify readings is restricted through log on privileges.

All meter reading data is archived and retained for over 48 months. Meter read data from 2012 was sighted during the audit.

GEOL

Review of audit trails in **section 2.4** confirmed that reads cannot be modified without an audit trail being created. Access to modify readings is restricted through log on privileges.

All meter reading data is archived and retained for over 48 months. Meter read data from 2010 was sighted during the audit.

GENH

AMS demonstrated compliance with this clause as part of their agent audit.

Generation

Generation data is stored indefinitely and can only be accessed by a small number of approved people with access rights.

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

GENE

EMS collects unmetered data in relation to streetlights as GENE's agent, and this information is appropriately archived. Compliance is confirmed in EMS' agent audit report.

GEOL

No non-metering information is collected by GEOL.

GENH

No non-metering information is collected by GENH.

Generation

No non-metering information is collected in relation to generation metering.

Audit outcome

Compliant

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

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

Code reference

Clause 19(1) Schedule 15.2

Code related audit information

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

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

Audit observation

Processes for correction of NHH meter readings were reviewed.

Audit commentary

GENE

Where errors are detected during the validation process, GENE may request a check meter reading for meters read by Wells, or review AMI readings for surrounding dates. If an original meter reading cannot be confirmed it is invalidated and ignored by the billing and reconciliation processes. A system estimate will be created for billing if necessary.

When back billing is completed by the billing team, they normally advise the reconciliation team. The reconciliation team checks the correction is appropriately spread by invalidating previous readings where necessary. In the event that the reconciliation team is not notified, the readings will still automatically flow from Gentrack to Derive each evening.

Genesis intends to recruit additional staff to assist with identifying and correcting revenue assurance issues such as faulty and bridged meters.

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

Defective meters

GENE was unable to provide examples of defective meters during the audit period due to reporting limitations. Work queues are closed once the issue is resolved, making examples difficult to identify.

I followed up the defective meter corrections which had not been processed at the time of the 2017 audit. All have now been appropriately corrected.

Incorrect multipliers

Multipliers are stored at meter level in Gentrack and Derive and are automatically applied to consumption on the meter. Any changes to metering information in Gentrack are transferred to Derive in the overnight update process.

I reviewed seven examples of multiplier discrepancies:

- for two meters Gentrack and Derive were correct, and the MEP updated the registry
- for five meters the registry was correct, and GENE updated Gentrack and Derive; the correct multipliers were applied for revision submissions.

Bridged meters

One example of a bridged meter during the audit period was provided. The meter was unbridged and an estimate of consumption during the bridged period was prepared. The correction flowed through to Derive and was included in reconciliation submissions.

The 2017 audit identified seven bridged meters which had been unbridged but consumption during the bridged period had not been estimated. These meters were re-checked during the 2018 audit and I found corrections had not been processed. Each meter was only bridged for between four and eleven days, and consumption during bridging was expected to be low. This is recorded as non-compliance below.

Inactive ICPs with consumption

No consumption is submitted for periods where ICPs have inactive status.

Consumption during periods with inactive status is identified, but these exceptions are not consistently investigated and resolved. This is discussed further in **section 9.5** and is recorded as non-compliance below.

I reviewed 10 meters with consumption while the ICP status was inactive and found that none had been corrected to active status prior to the audit. Statuses were corrected for the affected ICPs and periods during the audit.

Transposed meters

Three examples of transposed meter readings were checked and found to be processed correctly in Gentrack and Derive.

Unmetered load

Review of the registry list identified two ICPs with no trader unmetered load details or daily kWh recorded on the registry (ICPs 1002037145LC66D and 1002042462LCE6E). GENE confirmed both ICPs were unmetered speed cameras and the distributor's load information was incomplete. GENE updated the load to 2.4 kWh per day effective from their first day of responsibility, and the consumption will be correctly recorded in revision submissions.

The 2017 audit found no unmetered load had been reported from 2013 to 2017 for ICP 1000002777BP0EA. The ICP was checked during the 2018 audit, and I found a correction had been processed and all consumption was captured within the 14-month period. Ongoing submissions for ICP 1000002777BP0EA are correct.

GEOL

Where errors are detected during the validation process, GEOL may request a check meter reading for meters read by Wells, or review AMI readings provided by AMS for surrounding dates, which are loaded into the AMS data store. If a read is believed to be incorrect, it can be invalidated so that it will not be used for billing or reconciliation purposes in Orion. A system estimate will be created for billing, and the forward estimate process will apply for reconciliation.

Defective meters

GEOL was unable to provide examples of defective meters during the audit period due to reporting limitations. These ICPs have work queues closed once the issue is resolved and can be difficult to identify.

A correction for ICP 1502006000CH439 was not processed at the time of the 2017 audit, because GEOL did not wish to back bill the customer whose meter had stopped for a five-month period between August

2016 and January 2017. I re-checked the ICP during the 2018 audit and found that no correction had been processed and the 14-month submission window had passed.

Incorrect multipliers

The multiplier was not applied as part of Orion's normalised consumption calculations; the consumption was multiplied by the multiplier as part of the aggregation process which occurred outside Orion and is discussed further in **section 12.2**. Multipliers are stored in Gentrack.

I reviewed 14 examples of multiplier discrepancies.

- For three ICPs Orion and the submission data were correct, and the MEP updated the registry.
- For the other 11 ICPs the submission data was appropriately corrected. For ICPs 0027650403CN45D and 1615016000CH14C the multipliers were not corrected in Orion, because final billing for the meter had already occurred and GEOL did not wish to rebill. This had no impact on reconciliation because the multiplier was separately applied, and the impact on billing was minimal.

The 2017 audit issue relating to a multiplier correction that had not been processed correctly in Orion has been cleared. A multiplier of 60 had been applied to both meter registers.

Bridged meters

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

Inactive ICPs with consumption

No consumption is submitted for periods where ICPs have inactive status.

Consumption during periods with inactive status is identified, but these exceptions are not consistently investigated and resolved. This is discussed further in **section 9.5** and is recorded as non-compliance below.

I reviewed 12 ICPs where consumption while disconnected was identified during the audit period:

- two ICPs had corrections processed in Orion and Derive and correct consumption was reported
- ten ICPs did not have corrections processed and consumption while inactive remained.

ICP	Consumption while inactive (kWh)
0000015217HB648	147
0000143324UNCA3	31
0000160845HBD3A	138
0000190769UN3ED	1,708
0000711321TU254	153
0003401252WMBAC	372
0004708700CAF3D	60
0008809310CN110	14
0107719649LCC7A	24
1000014175BPB48	2,146

ICP	Consumption while inactive (kWh)
Total	4,793

I reviewed six ICPs where corrections to active status had not been processed in the 2017 audit:

- three ICPs had been corrected to active status, and the consumption was correctly reported in revision submissions
- three ICPs were either still not corrected, or the correction had not ensured that all consumption occurred with an active period, ICP 0012510340EL5DB was corrected during the 2018 audit, but the other two ICPs did not have status corrections.

ICP	Consumption while inactive (kWh)
0000188635UN41E	286
0061108501WM35D	21
0012510340EL5DB	68
Total	307

Transposed meters

Three examples of transposed meter readings were checked and found to be processed correctly in Orion and Derive.

Unmetered load

No unmetered load corrections were identified for GEOL.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 8.1 With: Clause 19(1) Schedule 15.2 From: 01-Sep-17 To: 16-Aug-18	**GENE** Consumption while inactive is not consistently monitored and corrected. Corrections did not occur for historic bridged meters. **GEOL** Consumption while inactive is not consistently monitored and corrected. Correction did not occur for one ICP. Potential impact: Medium Actual impact: Unknown 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 overall for corrections, because most issues requiring correction are identified and corrections are processed. Corrections for consumption that has occurred during inactive periods is identified, but investigation and correction does not always occur. The impact is unknown but assessed to be low, based on the low number of ICPs.

Actions taken to resolve the issue	Completion date	Remedial action status
The historical bridged meters consumption has been corrected and volumes included in wash ups. The INACTIVE consumption process breakdown has occurred by staff not adjusting the status until the end of our correction process rather than at time of first indication of consumption as required. An immediate piece of work has been started to identify any ICPs that may have been affected and correct status (back dated to start of consumption)	31 August 2018 31 Sep tember 2108	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refinements of the notification process of bridged meters has improved compliance in this area over the period. We note there are proposed changes to Code around correction of bridged meters. The monitoring and correction of INACTIVE status ICPs with consumption has been shifted to a business unit better suited to maintain ongoing.	10 September 2018	

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

Code reference

Clause 19(2) Schedule 15.2

Code related audit information

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

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

Audit observation

Processes for correction of HHR meter readings were reviewed.

AMS completes HHR corrections on behalf of GENE and GENH as an agent. Compliance was assessed as part of their agent audit report. A sample of ten HHR corrections for GENE were reviewed.

I checked two generation corrections for the period when meters were changed at Tekapo A and Huntly.

Audit commentary

GENE

Where errors are detected during validation of half-hour metering information, and check metering data is not available, then data from a period with a quantity and profile like that expected is to be used. This function is carried out by AMS on behalf of Genesis, and compliance is confirmed in their audit report.

If AMS has not provided estimates, or the estimates provided by AMS are made inactive, GENE's overnight estimation routine estimates based on the readings and history available for the meter, and the profile shape applied for the ICP. If insufficient history is available 24 kWh per register per day is estimated. No manual estimates are created for HHR data.

I reviewed ten corrections to HHR data and found they had been processed accurately:

- nine corrections occurred where data was missing at the time of the initial submission and was estimated, and later replaced with actual volumes, two of the original estimates were based on the default 24 kWh per register per day
- One correction occurred because an inactive period was removed; when the status was corrected consumption for the whole month was reported.

GENH

Where errors are detected during validation of half-hour metering information, and check metering data is not available, then data from a period with a quantity and profile like that expected is to be used. This function is carried out by AMS on behalf of GENH, and compliance is confirmed in their audit report.

Generation

This situation seldom occurs for generation metering data and check metering data can be used if required. I checked two corrections where one trading period needed to be permanently estimated. An appropriate audit trail is kept, and the trading period is recorded as an estimate. Only the "copy" channel can be edited not the "main" channel.

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

Genesis 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 22(1) and (2) Schedule 15.2)

Code reference

Clause 22(1) and (2) Schedule 15.2

Code related audit information

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

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

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

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

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

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

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

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

Audit observation

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

Raw meter data retention was reviewed as part of AMS and Wells' audits.

Audit commentary

NHH and HHR raw meter data is held by Wells and AMS, and their audits confirm that it cannot be edited.

GENE

I reviewed audit trails and supporting calculations for HHR and NHH data corrections and noted that they were compliant with the requirements of this clause for the sample of corrections checked.

GEOL

I reviewed Orion audit trails and supporting calculations for NHH corrections and confirmed that they were compliant with the requirements of this clause for the sample of corrections checked.

GENH

Raw meter data is not edited by AMS.

Generation

Generation raw meter data is not edited. Only the copy channel can be edited.

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 Genesis' 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

GENE

Readings are clearly identified as required by this clause.

As discussed in **section 6.6,** one customer read was treated as validated, when it had not been validated against at least two actual reads from other sources. This is recorded as non-compliance below.

GEOL

Readings are clearly identified as required by this clause.

As discussed in **section 6.6,** four customer reads were treated as validated, when they had not been validated against at least two actual reads from other sources. This is recorded as non-compliance below.

GENH

AMS' audit report confirms compliance with this clause.

Generation

In the rare event that generation data is estimated or corrected, there is an appropriate audit trail and the data is correctly identified.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.1 With: Clause 3(3) Schedule 15.2 From: 24-Oct-17 To: 14-Jul-18	**GENE** One customer read was treated as validated, when it had not been validated against at least two actual reads from other sources. **GEOL** Four customer reads were treated as validated, when they had not been validated against at least two actual reads from other sources. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are considered moderate because most of the customer readings checked were appropriately validated. Customer and photo reads usually only occur where it is not possible for the meter reader to gain access to perform a reading. There is potentially a minor impact on billing and settlement; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer 6.6 above		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 3(4) Schedule 15.2

Code related audit information

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

3(4)(a) - validated meter readings

3(4)(b) - estimated readings

3(4)(c) - permanent estimates.

Audit observation

A sample of submission data was reviewed in **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 data is collected by AMS and Wells, and HHR data is collected by AMS.

Generation data was checked during the audit.

Audit commentary

The MEPs and agents retain the raw, unrounded data. Compliance with this clause has been demonstrated by Genesis' agents and the MEPs as part of their own audits.

GENE

Manual meter readings do not record decimal places and are not rounded or truncated on import into Gentrack or Derive. AMI and HHR data provided by AMS is not truncated on import.

GEOL

Manual meter readings do not record decimal places and are not rounded or truncated on import into Orion. AMI data provided by AMS is not truncated on import.

GENH

AMS's audit report confirms compliance for GENH.

Generation data

Generation data was checked during the audit and rounding only occurs at the time of submission to two decimal places.

Audit outcome

Compliant

9.4. Half hour estimates (Clause 15 Schedule 15.2)

Code reference

Clause 15 Schedule 15.2

Code related audit information

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

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

Audit observation

The HHR estimate process was examined.

AMS completes HHR estimation on behalf of GENH and GENE, their estimation processes were reviewed as part of their agent audit. A sample of ten estimates were reviewed for GENE.

Estimation has not occurred for generation data.

Audit commentary

GENE

When AMS, on behalf of GENH, has not received actual data, then estimated data is provided. There is a requirement to use "reasonable endeavours" to ensure this data is accurate to within 10%. The AMS audit report indicates compliance with this clause.

In situations where AMS has not provided an estimate, or GENE has made AMS' estimate inactive, a GENE system routine is applied to calculate estimates. The overnight estimation routine estimates based on the readings and history available for the meter, and the profile shape applied for the ICP. If insufficient history is available 24 kWh per register per day is estimated. No manual estimates are created for HHR data.

I reviewed 12 GENE HHR estimates to confirm whether the requirement to use reasonable endeavours to ensure estimates were accurate were met. I found that the reasonable endeavours requirement was met in all cases, and where actual volumes were received at a later date the estimates were within ± 10% of these.

In some cases, especially where data is missing for many intervals, GENE will change the ICP's submission type to NHH. I saw evidence of this process in action during the audit.

GENH

When AMS, on behalf of GENH, has not received data prior to the deadline for providing submission information, then estimated data is provided. There is a requirement to use "reasonable endeavours" to ensure this data is accurate to within 10%. The AMS audit report indicates compliance with this clause.

Generation

Temporary estimation has not occurred for generation data.

Audit outcome

Compliant

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

Code reference

Clause 16 Schedule 15.2

Code related audit information

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

> *16(2)(a) - confirmation that the meter reading or estimated reading relates to the correct ICP, meter, and register*
>
> *16(2)(b) - checks for invalid dates and times*
>
> *16(2)(c) - confirmation that the meter reading or estimated reading lies within an acceptable range compared with the expected pattern, previous pattern, or trend*
>
> *16(2)(d) - confirmation that there is no obvious corruption of the data, including unexpected zero values.*

Audit observation

I reviewed and observed the NHH data validation process, including checking a sample of data validations and system validation lists.

Audit commentary

GENE

NHH data is validated by several processes.

Meter reader checks

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

Read import validation

If data becomes corrupt, including dates and times, Gentrack will not allow the file to be uploaded and an investigation will then occur.

Billing validation

Reads are validated after entry into Gentrack. This validation checks the reads are provided for the correct registers and are consistent with the number of dials recorded.

The billing validation includes:

- negative consumption (indicating a reading error, high previous estimate or transposed read)
- high consumption (high dollar)
- missing readings
- not the current retailer
- no active customer
- disconnected registers with consumption.

Vacant consumption

A vacant disconnection process is followed for vacant ICPs. A letter to the occupier is generated, and if a customer does not sign up or switch to another retailer, the ICP is disconnected after 21 days. I confirmed that consumption is submitted for vacant ICPs in **section 12.2**.

Zero consumption

ICPs with zero consumption for two bills or more are added to the stopped meter queue and investigated by the metering team. If a valid reason for the zero consumption is not identified, a field services job is raised to identify whether zero consumption has occurred due to bridging or a meter fault.

Bridged consumption is also identified through reconnection paperwork provided by MEPs and contractors.

Disconnected ICPs with consumption

Disconnected ICPs with consumption are not actively being monitored. ICPs with consumption while inactive will only have their consumption reported if the status is returned to active. I recommend that consumption while inactive should be investigated and corrected.

Description	Recommendation	Audited party comment	Remedial action
NHH metering information data validation	Investigate whether consumption while ICPs have inactive status is genuine. Following investigation, correct the status and re-disconnect as necessary.	Agreed, addressed via process changes noted in 8.1 above.	Identified

Not investigating and correcting the status for ICPs with consumption while inactive is recorded as non-compliance in **section 8.1**.

Derive and MSD validations

Readings are checked on import into Derive. Any reads which are high, low, or have potential errors are put on hold and must be released by the reconciliation team. Further consumption validation occurs within MSD, as described in **section 12.3.**

GEOL

NHH data is validated by several processes. The process description includes the previous Orion system. Validation processes are now the same as GENE.

Meter reader checks

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

Read import validation

The validation process includes the following steps:

If data became corrupt, including dates and times, GEOL's Orion did not allow the file to be uploaded and an investigation occurred.

The meter numbers are then "matched" between the files from meter reading agents and Gentrack (and previously Orion), and any discrepancies are investigated.

Orion validated reads and created read import exceptions as the reads were imported. The read import exceptions included:

- high, low or negative compared to the last reading
- a reading already exists on the read date - this can occur if a read file is accidentally imported twice, or a customer phones in a reading on the day of a scheduled reading
- invalid (future) read date
- out of time / overdue / force complete - this occurs when Wells cannot obtain a read within the scheduled window and is treated as a no read.

GEOL also identifies no reads for AMI meters, recorded as code 89 in the AMS read files. GEOL attempts to locate a read within ± 10 days of the scheduled read date in the AMS data store and loads it into Orion. This read is used to create an estimate for the scheduled read date and will also be used by the historic estimate process.

Billing validation

After the reads are imported and validated, the transaction generation and invoice generation processes run overnight. If the transactions generated pass validation, an invoice is generated. If they fail validation they appear as a billing exception. The Orion billing validations included:

- closed account without a closing read
- read for one meter and not the other
- no loss factor
- no price category
- reversed but not rebilled
- +/- 3% total spend compared to previous bill.

Once the billing exceptions have been reviewed and approved if acceptable by CSRs, an exceptions billing run is created to invoice the approved transactions.

Vacant consumption

A vacant disconnection process is followed for vacant ICPs. Vacant ICPs with consumption are identified, and rebooked for disconnection if no customer signs up with GEOL. I confirmed that consumption is submitted for vacant ICPs in **section 12.2**.

Zero consumption

ICPs with zero consumption are identified through the billing validations where the zero consumption is more than 3% less than the previous invoice.

Bridged meters should be identified through information provided by contractors and the low consumption validation checks.

Disconnected ICPs with consumption

Disconnected ICPs with consumption are not actively being monitored. ICPs with consumption while inactive will only have their consumption reported if the status is returned to active. I recommend that consumption while inactive should be investigated and corrected for.

Description	Recommendation	Audited party comment	Remedial action
NHH metering information data validation	Investigate whether consumption while ICPs have inactive status is genuine. Following investigation, correct the status and re-disconnect as necessary.	Agreed, addressed via process changes noted in 8.1 above	Identified

Not investigating and correcting the status for ICPs with consumption while inactive is recorded as non-compliance in **section 8.1**.

Pre-submission validations

Reconciliation consumption is validated prior to submission as described in **section 12.3.**

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

Review of meter event logs and validation checks. Review of AMS' agent audit report.

Audit commentary

GENE and GEOL

Electronic meter reading information is provided by AMS. For HHR AMI installations, interrogation occurs every night so there is little risk that data can be overwritten. Data is held for a longer period at the meter and can be re-interrogated later if required.

Validation of electronic data was examined as part of AMS' audit, and compliance with the requirements of clause 17 is confirmed. Each validity check for half-hour metering information includes the following:

- checks for missing data
- checks for invalid dates and times (this is conducted through the clock synchronisation process)
- checks of unexpected zero values (these settings are at ICP and some are set to allow for a certain number of zeros depending on the customer type)
- minimum VA
- maximum VA - set based on CT ratio
- comparison with expected or previous flow patterns (these can be viewed graphically)
- comparisons with the readings reported by meter and data logger registers where these are available
- a review of meter and data logger event list - any event that could have affected the integrity of metering is investigated
- phase failure.

GENE and GEOL also conduct consumption validation for all AMI ICPs using the same processes as for NHH ICPs. This achieves compliance with the requirement to conduct the following validations:

- checks of unexpected zero values
- comparison with expected or previous flow patterns.

AMS provide meter event logs which are received by GENE and GEOL but are not reviewed. GENE and GEOL intend to develop processes to enable this event information to be reviewed and actioned.

Selected event information is emailed to GENE and GEOL. In some cases, these are advisory, and no action is required, and in others AMS asks for a job to be raised. I saw some examples of these emails received by GENE and GEOL, including lists of non-communicating ICPs, tamper alarms and power reversed. I checked the "filtering" processes for AMS, SMCO, FCLM and Metrix and I confirm they are identifying all relevant events. The only MEP not providing any information is ARC Innovations. Non-compliance exists for not reviewing this event information.

GENH

AMS's audit report confirms compliance with these clauses. In situations where data fails validation and a logical reason cannot be found the issue is referred to the account manager for further investigation into possible site-specific reasons for the anomaly. A final option is for a site visit if the anomaly cannot be reasonably explained.

Generation

Interrogation occurs nightly for generation metering so there is little risk that data will be overwritten.

No Generation data has failed validation in the last year.

Each validity check for generation half-hour metering information includes the following:

- checks for missing data
- checks for invalid dates and times (data will not be collected if dates or times are invalid)
- checks of unexpected zero values
- comparison with expected or previous flow patterns (a comparison is made against the previous month)
- comparisons with the readings reported by meter and data logger registers where these are available; and
- a review of the Stark meter and data logger event list - any event that could have affected the integrity of metering is investigated.

This clause requires that a review of meter and data logger event list is undertaken. Any event that could have affected the integrity of metering is required to be investigated.

The GEMDP collection system is also used to collect data from all loggers and this data is compared to the "HHR vols" data each month. The two sets of data were compared during the audit and they were the same.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.6 With: Clause 17 Schedule 15.2 From: 01-Sep-17 To: 16-Aug-18	**GENE and GEOL** AMI events for ARC are not all being reviewed and actioned for GENE and GEOL. 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 because the event information is not all reviewed. The impact on settlement is likely to be low because GENE and GEOL are monitoring and actioning selected event information emailed to them by most MEPs. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Our procedure has not been to review every line of every event log due to physical numbers of entries and that we have internal controls across metering data and billing systems to identify the same issues. Event logs are then used to support/confirm these instances when found. We will add to this procedure a system based check of event log files to cross reference identified instances to ensure no other potential instances are included.	28 February 2019	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

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

Code reference

Clause 13.136

Code related audit information

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

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

Audit observation

Genesis does not have responsibilities for the provision of information to the grid owner.

Audit commentary

Genesis does not have responsibilities for the provision of information to the grid owner.

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

Genesis does not have responsibilities for the provision of information to the grid owner.

Audit commentary

Genesis does not have responsibilities for the provision of information to the grid owner.

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

Genesis does not have responsibilities for the provision of information to the grid owner.

Audit commentary

Genesis does not have responsibilities for the provision of information to the grid owner.

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

Genesis does not have responsibilities for the provision of information to the grid owner.

Audit commentary

Genesis does not have responsibilities for the provision of information to the grid owner.

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 was reviewed for the audit period to confirm the profiles used. Processes to create buying and selling notifications were reviewed.

Audit commentary

Trading notifications are required five days prior to the commencement of trading.

The GENE trading team are responsible for creating trading notifications for GENE, GEOL, and GENH on the reconciliation portal. The trading team become aware of changes needed by:

- the Reconciliation Manager providing notification of a change to an existing NSP
- the GENE reconciliation team advising that they have set up a new NSP or added injection flow to an existing NSP
- checking a report from Gentrack against their open trading notifications.

I reviewed examples of correspondence relating to NSP changes, new NSPs for GENE, and introduction of injection flows to confirm that the process was operating as expected.

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

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

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

Audit outcome

Compliant

11.2. Calculation of ICP days (Clause 15.6)

Code reference

Clause 15.6

Code related audit information

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

> *15.6(1)(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period*
>
> *15.6(1)(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.*

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

Audit observation

The process for the calculation of ICP days was examined by checking five NSPs with a small number of ICPs each for GENE NHH, GENE HHR, and GEOL and 13 NSPS for GENH to confirm the AV110 ICP days calculation was correct.

I reviewed variances for 18 months of GR100 reports each for GENE and GENH, and 17 months of GR100 reports for GEOL, and investigated any large discrepancies.

Alleged breaches provided by the EA were reviewed.

Audit commentary

Breach information provided by the EA did not identify any late ICP days submissions.

GENE

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

The following table shows the ICP days difference between GENE files and the RM return file (GR100) for all available revisions for 18 months. Negative percentage figures indicate that the GENE ICP days figures are higher than those contained on the registry. The discrepancies are very small and consistent.

Month	Ri	R1	R3	R7	R14
Jan 2017	0.00%	-	0.00%	0.00%	0.00%
Feb 2017	0.01%	0.00%	0.00%	0.00%	0.00%
Mar 2017	0.00%	0.01%	0.00%	0.00%	0.00%
Apr 2017	0.02%	0.00%	0.00%	0.00%	0.00%
May 2017	0.02%	0.00%	0.00%	0.00%	-

Month	Ri	R1	R3	R7	R14
Jun 2017	0.00%	0.01%	0.00%	0.00%	-
Jul 2017	0.00%	0.00%	0.00%	0.00%	-
Aug 2017	0.01%	0.00%	0.00%	0.00%	-
Sep 2017	0.01%	-0.01%	0.00%	0.00%	-
Oct 2017	0.00%	0.01%	0.00%	0.00%	-
Nov 2017	0.00%	0.00%	0.00%	0.00%	-
Dec 2017	0.01%	0.01%	0.00%	-	-
Jan 2018	0.00%	0.00%	0.00%	-	-
Feb 2018	0.07%	0.00%	0.00%	-	-
Mar 2018	0.01%	0.01%	0.00%	-	-
Apr 2018	0.01%	0.00%	-	-	-
May 2018	0.01%	0.00%	-	-	-
Jun 2018	0.01%	-	-	-	-

I reviewed five NSP level ICP days differences. All related to backdated switches and status updates. Late status updates are discussed in **sections 3.3** and **3.5**, and backdated switches are discussed in **sections 4.3** and **4.7**.

In the AMS audit report, I have recorded that I checked the process for changes from NHH to HHR and from HHR to NHH to ensure all consumption information was correctly identified. When one of these changes occurs, AMS considers the ICP to be HHR all day and they insert zeros in the file for the period before or after the change, so the file is complete for the day. This means that if it is a change from NHH, the NHH period is considered to end at the end of the previous day. If the change is to NHH, the NHH period is considered to start at the beginning of the next day. This approach ensures all consumption information is captured and ensures the registry only has one metering installation on a given day, because the registry cannot have different metering types or different submission types for the same day. ICP days calculations are correct for this scenario.

When a HHR installation is decommissioned, the ICP is considered to be active for that day; submission information is supplied along with an ICP day. The registry shows the site being decommissioned all day, but the consumption information should be supplied to the reconciliation manager and therefore an ICP day is also supplied. This results in an ICP day discrepancy between the ICP days file and the registry.

Whilst I've noted that both processes above achieve accuracy for consumption information, non-compliance is recorded in **section 6.7** for the incorrect application of meter readings. The ICP days calculations are correct because they align with the consumption information.

GEOL

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

The following table shows the ICP days difference between GEOL files and the RM return file (GR100) for all available revisions for 17 months. Negative percentage figures indicate that the GEOL ICP days figures are higher than those contained on the registry. The discrepancies are very small and consistent.

Month	Ri	R1	R3	R7	R14
Jan 2017	0.02%	0.00%	0.01%	0.00%	0.00%
Feb 2017	0.00%	0.01%	0.00%	0.00%	0.00%
Mar 2017	0.00%	0.01%	0.00%	0.00%	0.00%
Apr 2017	0.00%	0.00%	0.00%	0.00%	0.00%
May 2017	0.01%	0.00%	0.00%	0.00%	-
Jun 2017	0.00%	0.00%	0.00%	0.00%	-
Jul 2017	0.01%	0.00%	0.00%	0.00%	-
Aug 2017	0.02%	0.00%	0.00%	0.00%	-
Sep 2017	0.01%	0.00%	0.00%	0.00%	-
Oct 2017	0.00%	0.00%	0.00%	0.00%	-
Nov 2017	0.01%	0.00%	0.00%	0.00%	-
Dec 2017	0.00%	0.00%	-0.01%	-	-
Jan 2018	0.00%	0.00%	0.00%	-	-
Feb 2018	0.00%	0.00%	0.00%	-	-
Mar 2018	0.01%	0.00%	0.00%	-	-
Apr 2018	-0.01%	0.00%	-	-	-

Month	Ri	R1	R3	R7	R14
May 2018	0.00%	0.00%	-	-	-

I reviewed five NSP level ICP days differences and found they were due to backdated status changes. When a status was updated in Orion, update of the registry was sometimes missed resulting in discrepancies. The GENE reconciliation team compared ICP days to the registry and would process backdated status updates to resolve these issues. Gentrack has a registry interface so this manual step is no longer required.

The 2017 audit found ICP days submissions were not being zeroed if an NSP appeared in an earlier submission but not revisions. I re-checked APS0111 which was reported in the AV110 April and May 2016 initial submissions before the switch for ICP 0006656960RNE4E was withdrawn. I found that the NSP was not zeroed by revision 14 and the ICP days discrepancy remained. This is not recorded as non-compliance because it was raised in the 2017 audit and it has not occurred again.

GENH

The process for the calculation of ICP days was examined by checking 13 NSPs with a small number of ICPs each for GENH. The ICP days calculation was confirmed to be correct.

The following table shows the ICP days difference between GENH files and the RM return file (GR100) for all available revisions for 18 months. Negative percentage figures indicate that the GENH ICP days figures are higher than those contained on the registry.

Month	Ri	R1	R3	R7	R14
Jan 2017	0.16%	0.00%	0.00%	0.00%	0.00%
Feb 2017	0.05%	0.00%	0.00%	0.00%	0.00%
Mar 2017	0.22%	0.01%	0.00%	0.00%	0.00%
Apr 2017	0.20%	0.06%	-0.01%	-0.01%	-0.01%
May 2017	0.04%	0.05%	0.00%	0.00%	-
Jun 2017	-0.01%	0.20%	-0.01%	-0.01%	-
Jul 2017	0.07%	-0.08%	0.00%	0.00%	-
Aug 2017	0.05%	0.00%	0.00%	0.00%	-
Sep 2017	0.06%	0.00%	0.00%	0.00%	-
Oct 2017	0.06%	-0.04%	0.00%	0.00%	-

Month	Ri	R1	R3	R7	R14
Nov 2017	-0.02%	-0.07%	0.00%	0.00%	-
Dec 2017	0.07%	0.07%	0.00%	-	-
Jan 2018	0.12%	0.02%	0.00%	-	-
Feb 2018	-0.08%	-0.02%	-0.01%	-	-
Mar 2018	0.04%	0.01%	0.00%	-	-
Apr 2018	0.07%	0.04%	-	-	-
May 2018	0.02%	0.02%	-	-	-
Jun 2018	-0.01%	-	-	-	-

I reviewed five NSP level ICP days differences and found they related to:

- backdated switches and switch withdrawals
- one downgrade which was processed incorrectly, the ICP was downgraded to NHH but the participant code was not updated from GENH to GENE
- decommissioned ICPs where AMS submits an ICP day for the day of decommissioning to capture any consumption which occurred prior to the decommission time - AMS treats the status change to decommissioned as being effective from the beginning of the day, resulting in a one-day difference between the expected and submitted days.

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 to May 2018 were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

Audit commentary

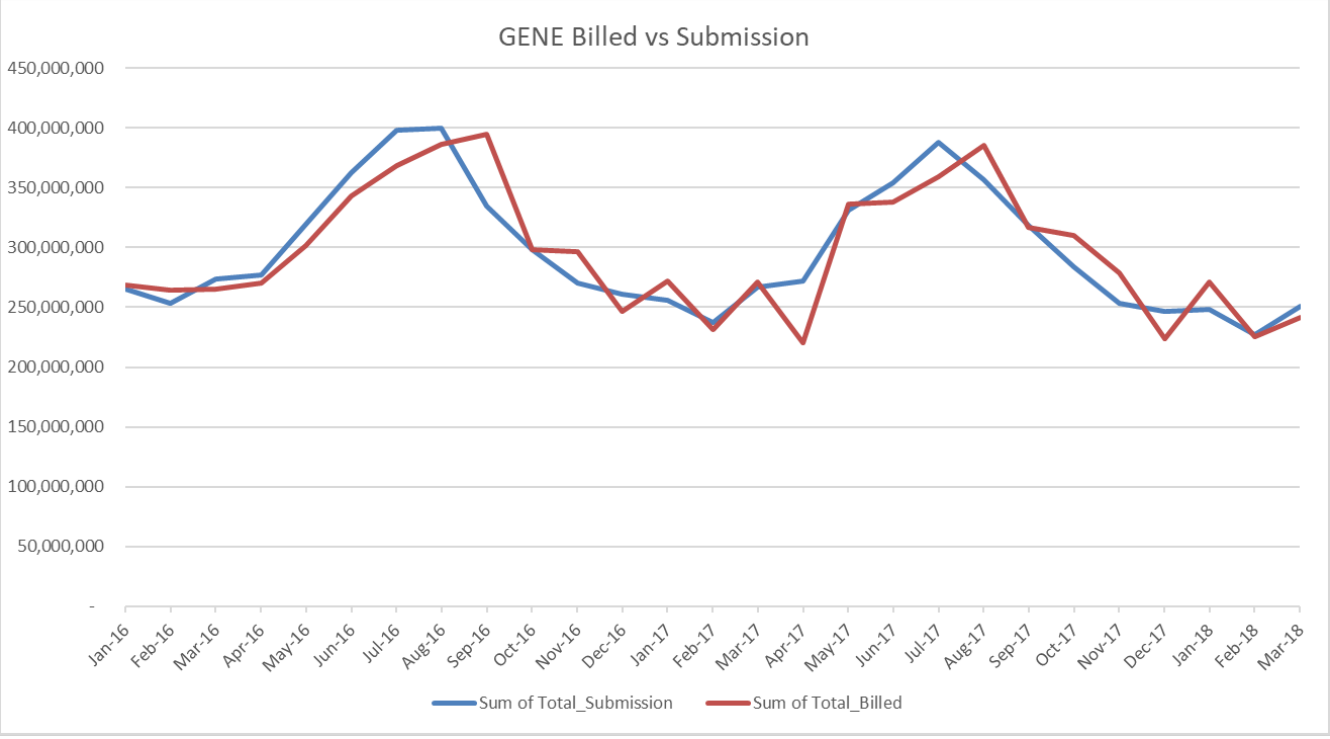
The process for the calculation of as billed volumes was examined by checking five NSPs with a small number of ICPs each for GENE, GEOL and GENH against invoice information. The AV120 billed consumption calculation was confirmed to be correct for the NSPs checked.

I also checked the difference between submission and electricity supplied information for a 29-month period, and the results are shown and discussed in the charts below.

GENE Comparison between submitted and billed kWh

GENE's as billed submissions are complicated by some streetlights which are submitted as NHH and billed as HHR. I walked through GENE's process to create as billed reports and found that these ICPs were identified and handled correctly when creating the as billed submissions.

For GENE the total difference is -0.60% for the two years ended May 2018 and -1.15% for the year ended May 2018 (billed lower than submission). Rolling differences between as billed and submitted data are monitored at a high level.



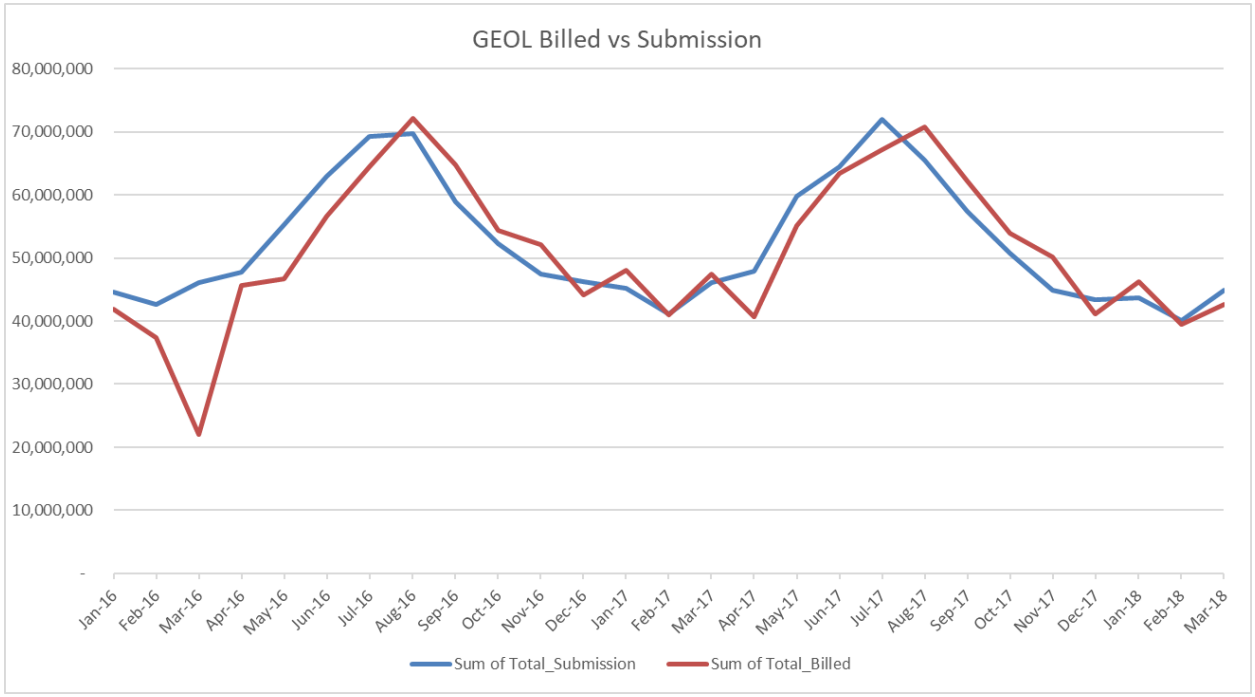
Differences between billed and submitted data were reviewed and found to be billing and bill reversal timing differences.

GEOL Comparison between submitted and billed kWh

For GEOL the total difference is -0.83% for the two years ended May 2018 and -0.92% for the year ended May 2018 (billed lower than submission). This is a dramatic improvement from the 2017 audit which found differences over 10%.

The relationship between billed and submitted data has been much closer following a process change in October 2016 to remove registers GEOL does not bill for. Genesis validates the billed consumption using

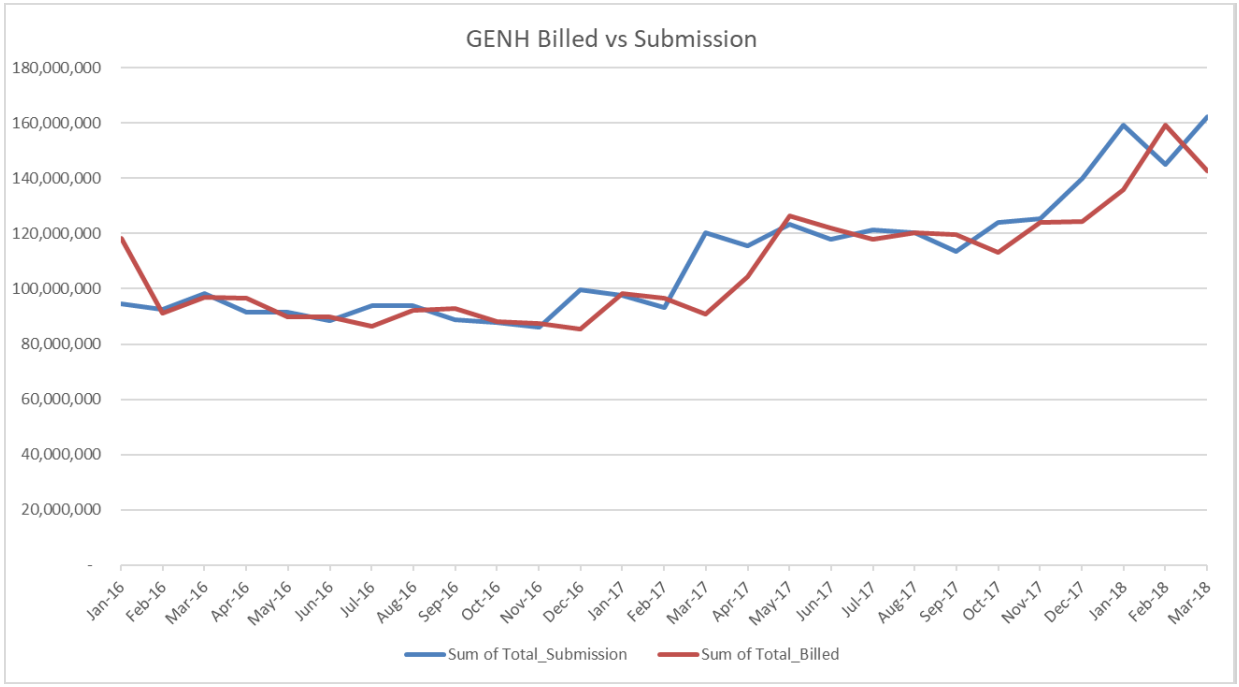
a script to exclude any billed consumption where the flow direction ≠2, and the settlement indicator for the meter register ≠ Y. The NSP recorded is also checked against the registry.



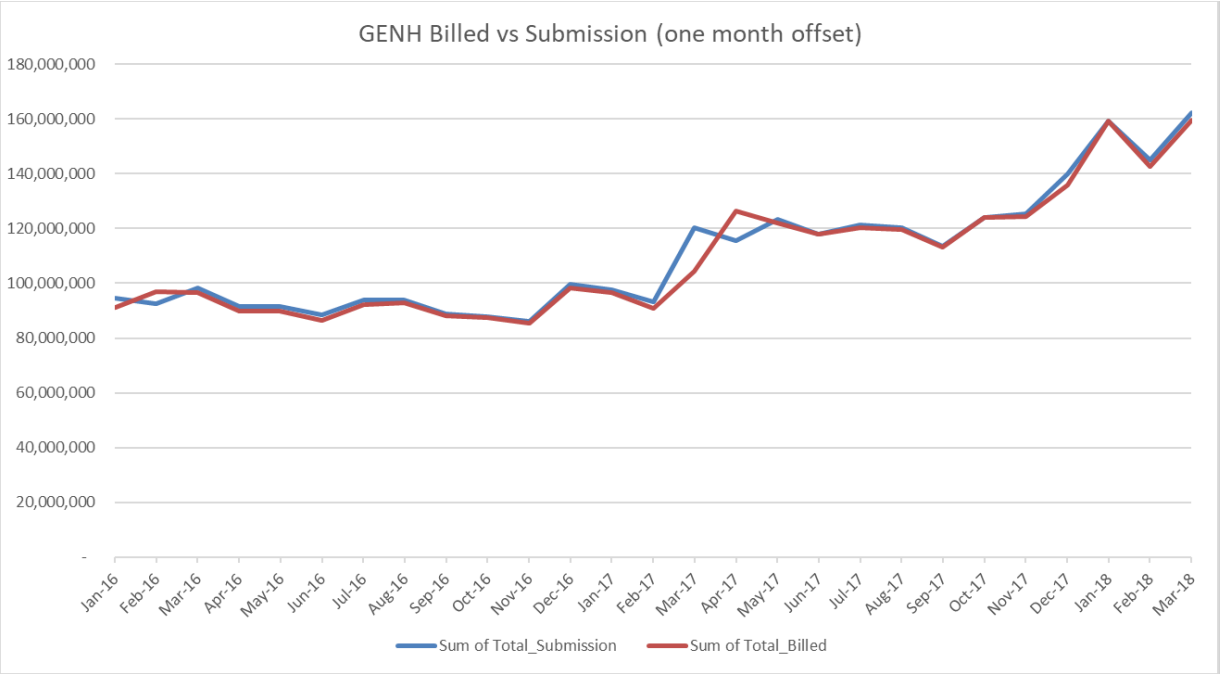
Differences between billed and submitted data were reviewed and found to be billing timing differences.

GENH Comparison between submitted and billed kWh

For GENH the total difference is -3.49% for the two years ended May 2018 and -3.54% for the year ended May 2018 (billed lower than submission).



The difference largely appears due to timing; when the billing and submission periods are aligned the differences are minimal. The larger difference in March to May 2017 occurred when the query logic was adjusted to remove some duplicated DUML information, where dummy ICPs had been created for billing purposes.



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

I confirmed whether the process for the calculation and aggregation of HHR data was correct, by:

- matching HHR aggregates information with the HHR volumes data for seven submissions for GENE and 11 submissions for GENH.
- comparing a sample of data from the HHR aggregates file to the source information for GENH during the AMS agent audit, and for GENE during this audit.

The GR090 ICP Missing files were examined for July 2016 to June 2017 for GENH, and October 2017 to Jan 2018 for GENE. An extreme case sample of the ten ICPs missing for the most months were reviewed for GENH, and a diverse sample of 13 ICPs missing were checked for GENE.

Audit commentary

GENE and GENH's HHR aggregates reports contain submission information, not electricity supplied information as specified under clause 15.8. Although the reports Genesis and AMS produce are consistent with the Reconciliation Manager Functional Specification, this is recorded as non-compliance below.

GENE

Exemption No.256 which exempted Genesis from submitting half hour aggregate data for category 1 or 2 ICPs expired 1 October 2017.

I compared the volumes and aggregates data for 11 submissions for October 2017 and later. There were some small differences between the volumes and aggregates submissions for October 2017. At total submission level, the differences were between -592 and +1,145 kWh (or -0.0004% and +0.0007%). Investigation confirmed that some aggregates information was incorrect. The HHR data is stored in two tables in MSD; the "daily" table and the "both" table. The "daily" table provides daily data with the correct aggregation factors for each day, and the "both" table records the consumption against the aggregation factors that applied at the end of the month. The volumes are always created from the "daily" table, but for the first aggregates submission the aggregates were calculated from the "both" table, resulting in differences for some ICPs which had not had submission type HHR or the same NSP for the whole month. I confirmed that for later revisions the aggregation factor differences washed out. There was no settlement impact, because the volumes file which is used for reconciliation was correct.

Volumes and aggregates submissions checked after October 2017 matched, with only small rounding differences present.

I traced volumes for a sample of three ICPs for two months from the AMS data store data to MSD and the HHR submissions, and found they matched.

The GR090 ICP Missing files were examined for all revisions for October 2017 to Jan 2018. Where an ICP's status changes to inactive or it switches out after the initial submission, revisions are not consistently updated to reflect the new status. Genesis was aware of this issue prior to the audit and is working on a resolution.

GENH

I compared volumes and aggregates files for 11 submissions and confirmed that they were consistent.

The process or calculation of volumes was checked by comparing raw meter data from MV090 against aggregates information as part of AMS' audit.

The GR090 ICP Missing files were examined for all revisions for July 2017 to June 2018. An extreme case sample of the ten ICPs with the largest number of months containing missing data were reviewed. All of the differences related to timing of backdated submission type updates, switches, and withdrawals.

- I found that AMS (agent to GENH) is not always zeroing records where an ICP appeared in an earlier revision but was not required for a later revision. This results in data from the previous submission remaining in the reconciliation manager's database causing a difference on the GR090.
- I note that where zeroing does occur, the ICP remains in the reconciliation manager's database with zero consumption, which can also cause a difference in ICP days although zeroing was completed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 11.4 With: Clause 15.8 From: 01-Sep-17 To: 16-Aug-18	**GENE** HHR aggregates files do not contain electricity supplied information. Initial aggregates submissions for October 2017 did not contain the correct daily aggregation factors for each day for ICPs with aggregation factor changes during the audit period. Some revision submissions did not adjust for changes to ICP status since the previous revision. **GENH** HHR aggregates files do not contain electricity supplied information. Some HHR aggregates submissions were not zeroed. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The issue relating to content of the aggregates file is an error in the code, GENE and GENH are providing submission information as expected. The impact is assessed to be low. Submission differences will be corrected and washed up.

Actions taken to resolve the issue	Completion date	Remedial action status
Error in October 2017 (initial resumption of file submission leading up to expiry of exemption) has been corrected. Further minor refinements identified have also been completed	30 August 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

12. SUBMISSION COMPUTATION

12.1. Daylight saving adjustment (Clause 15.36)

Code reference

Clause 15.36

Code related audit information

The reconciliation participant must provide submission information to the reconciliation manager that is adjusted for NZDT using 1 of the techniques set out in clause 15.36(3) specified by the Authority.

Audit observation

Daylight savings processes for MEPs and agents were reviewed as part of their audits.

A diverse characteristics sample of six daylight savings adjustments were reviewed for GENE, covering changes to and from daylight savings. GENH daylight savings adjustments were checked during the AMS audit.

Generation data was checked on site.

Audit commentary

GENE

Daylight savings processes for AMS were reviewed as part of their audit and found to be compliant. The correct number of trading periods were recorded for all data reviewed.

GENH

The AMS report confirms compliance.

Generation

Daylight saving is appropriately dealt with for generation metering.

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

The process to create submissions was reviewed.

GENE

- **NHH submissions** are produced using Derive. A diverse sample of NHH ICPs were checked to confirm submissions were correct. Further information on calculation of historic estimate is recorded in **section 12.11**, and the aggregation of the AV080 report was found to be compliant in **section 12.3**.
- **HHR submissions** are created using MSD and are discussed in **section 11.4**.
- **NSP volumes submissions** are discussed in **section 12.6**. Non-compliance is recorded in that section for late provision of NSP volumes.

GEOL

- **NHH submissions** were produced using Orion. A diverse sample of NHH ICPs were checked to confirm submissions were correct. Further information on calculation of historic estimate is recorded in **section 12.11**, and the aggregation of the AV080 report was found to be compliant in **section 12.3**.

GENH

- **HHR submissions** are produced by AMS as GENH's agent and are discussed in **section 11.4**.

Audit commentary

GENE

GENE submits HHR volume information, NHH volume information (forward and historic estimates) and unmetered volume information.

A sample of NHH ICPs were checked to confirm whether they were handled correctly:

- I reviewed submissions for a sample of ten ICPs with injection/export registers and confirmed that generation consumption is correctly submitted, but the EG1 profile was recorded instead of PV1 for solar generation, this is recorded as non-compliance in **section 12.7**
- I checked the process for vacant consumption including viewing submission information for two ICPs and confirmed that vacant consumption is reported
- consumption while inactive is only reported if the status is returned to active; status corrections do not always occur on a timely basis for ICPs with inactive consumption and this is discussed further in **sections 8.1** and **9.5**.
- a diverse sample of 10 ICPs with unmetered volumes were checked, including standard and shared unmetered load; correct consumption was reported for all ICPs checked.

No breaches had been recorded for late provision of submission information.

In the AMS audit report, I have recorded that I checked the process for changes from NHH to HHR and from HHR to NHH to ensure all consumption information was correctly identified. When one of these changes occurs, AMS considers the ICP to be HHR all day and they insert zeros in the file for the period before or after the change, so the file is complete for the day. This means that if it is a change from NHH, the NHH period is considered to end at the end of the previous day. If the change is to NHH, the NHH period is considered to start at the beginning of the next day. This approach ensures all consumption information is captured and ensures the registry only has one metering installation on a given day, because the registry cannot have different metering types or different submission types for the same day. ICP days calculations are correct for this scenario.

When a HHR installation is decommissioned, the ICP is considered to be active for that day; submission information is supplied along with an ICP day. The registry shows the site being decommissioned all day,

but the consumption information should be supplied to the reconciliation manager and therefore an ICP day is also supplied. This results in an ICP day discrepancy between the ICP days file and the registry.

Whilst I've noted that both processes above achieve accuracy for consumption information, non-compliance is recorded in **section 6.7** for the incorrect NHH meter reading application.

GEOL

GEOL submits NHH volume information (forward and historic estimates) and unmetered volume information. Submission information is generated in Orion and checked and aggregated by GENE prior to submission.

A sample of NHH ICPs were checked to confirm whether they were handled correctly:

- I reviewed submissions for a sample of ten ICPs with injection/export registers and confirmed that generation consumption is correctly submitted but the EG1 profile was recorded instead of PV1 for solar generation, and this is recorded as non-compliance in **section 12.7**
- I checked the process for vacant consumption and confirmed that vacant consumption is reported
- consumption while inactive is only reported if the status is returned to active; status corrections do not always occur on a timely basis for ICPs with inactive consumption and this is discussed further in **sections 8.1** and **9.5**.
- a diverse sample of 10 ICPs with unmetered volumes were checked, including standard and shared unmetered load. Correct consumption was reported for all ICPs checked except:

ICP	Daily kWh on registry	Daily kWh June 2018 initial	Comments
0000010025CP28E	0.076	14	Estimated daily consumption was set incorrectly in Orion. The estimated daily consumption has been set correctly in Gentrack, so future submissions and revisions should be correct.
0000015712CP09E	0.24	0	Settlement indicator was set to "no", so no consumption was reported. The ICP has been set up correctly in Gentrack, so future submissions and revisions should be correct.
0000018829CPC9D	0.977	0	No unmetered load was set up in Orion. The ICP has been set up correctly in Gentrack, so future submissions and revisions should be correct.
0000542699TUEBB	9.108	0	No unmetered load was set up in Orion. The ICP has been set up correctly in Gentrack, so future submissions and revisions should be correct.

- five ICPs with a change of NSP were checked and found to be handled correctly; Orion was reporting the full consumption on one NSP and part consumption on the other, but GENE's Derive processes match the Orion data to a date ranged registry list to ensure consumption is reported against the correct NSP
- five ICPs with a meter change were checked:
    - for two of the five, forward estimate was incorrectly submitted on the removed meter
    - for the other three, no forward estimate was present on the removed meters. This is recorded as non-compliance in **section 12.7**.

No breaches had been recorded for late provision of submission information.

GENH

Submissions are prepared by AMS, and their audit report recorded compliance. No breaches had been recorded for late provision of submission information.

No breaches had been recorded for late provision of submission information.

Generation

No breaches had been recorded for late provision of submission information. Non-compliance is recorded in **section 12.6** for late submission of generation volumes.

Audit outcome

Compliant

12.3. Allocation of submission information (Clause 15.5)

Code reference

Clause 15.5

Code related audit information

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

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

Audit observation

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

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

The process for aggregating the AV080 was examined by checking five NSPs with a small number of ICPs each for GENE and GEOL. The GR170 to AV080 files for a diverse sample of four months and revisions were compared for GENE, and six months and revisions were compared for GEOL, to confirm zeroing occurs.

Derive error code information and MSD process documentation was reviewed.

Audit commentary

GENE

GENE prepares NHH submissions using reconciliation consumption generated in Derive.

New and changed meter and meter reading data is transferred from Gentrack to Derive each night. Derive validates the data received. I reviewed a list of the 254 validations completed for imported data, which include checks for incomplete data, mismatched data, replacement data, and data that falls outside expected values. Any exceptions generated by the validation process are resolved by the reconciliation team. Queries are used to obtain additional information on exceptions, and they can be passed in bulk so that outliers can be focused on. It is also possible to manually pass or fail exceptions one by one.

Derive calculates the reconciliation submissions based on the data received from Gentrack and SASV. The process for the aggregation of NHH volumes was examined by checking five NSPs with a small number of ICPs. NHH volume aggregation was confirmed to be correct.

Once created, submissions are checked in the Market Submission Database (MSD). In MSD each submission is compared to the previous submission to identify any aggregation combinations that appeared in the previous submission but not the current submission. GENE then creates a dummy ICP in Derive with the appropriate aggregation factors, which will be incorporated into the AV080 report with zero consumption, creating the zero line. GR170 and AV080 files for four months and revisions were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required.

I walked through the process to review submission information in MSD using the Consumption Validation Manager Tool (MVMT). The tool allows comparison at distributor and NSP level between previous months and revisions and presents data graphically and in tables. It is possible to drill down to meter level and compare data from Gentrack and Derive for GENE. Exceptions are created for:

- high or low compared to the previous submission; and
- monthly consumption >10,000 kWh.

Low and negative consumption is identified and resolved through Derive's validations before being viewed in MVMT. MVMT allows users to view the data only, if an exception requires correction it must be adjusted in Derive and Gentrack (if necessary), and then re-checked using MVMT.

GENE HHR data is also reviewed in MSD prior to submission. I walked through the validation process which includes checks against expected values and the previous 14 months of consumption for the ICP. The reconciliation team uses queries to prioritise the ICPs that have failed validations, focussing on the largest differences (more than ±150%) first and then working through smaller discrepancies.

GEOL

GENE prepares NHH submissions for GEOL using reconciliation consumption generated in Orion. Genesis has processes to:

- apply multipliers, which are not applied in Orion's consumption calculations
- correct ICPs which have had an NSP change, so consumption is not duplicated; and
- close removed meters so that forward estimate is not generated in error.

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

In MSD each submission is compared to the previous submission to identify any aggregation combinations that appeared in the previous submission but not the current submission. GR170 and AV080 files for six months and revisions were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required.

Submission data is validated in MSD using the same process as for GENE data.

GENH

HHR submissions are prepared by AMS as GENH's agent, as discussed in **section 11.4**.

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

GENE, GEOL, and GENH are not grid owners.

Audit commentary

GENE, GEOL, and GENH are not grid owners, and are not required to provide this information.

Audit outcome

Not applicable

12.5. Provision of NSP submission information (Clause 15.10)

Code reference

Clause 15.10

Code related audit information

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

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

Audit observation

A registry list was reviewed to confirm that GENE, GEOL and GENH do not own any local or embedded networks.

Audit commentary

GENE, GEOL and GENH are not local or embedded network owners and are not required to provide this information.

Audit outcome

Not applicable

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

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

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

Audit observation

Genesis is a generator and I examined the process for preparation of submission information.

Audit commentary

Genesis is a generator and volumes files provided were accurate.

An alleged breach was recorded for late provision of NSP volumes. No other non-compliance was identified.

Ref	Breach Description	Clause	Date	Outcome
1709GENE1	Genesis failed to submit initial NSP volumes by 16:00 on the 4th business day.	Part 15 Clause 15.9 (a)	31/10/2017	Early closure

Audit outcome

Compliant

12.7. Accuracy of submission information (Clause 15.12)

Code reference

Clause 15.12

Code related audit information

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

Audit observation

The accuracy of submission information was reviewed, including a review of corrections 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

Review of alleged breaches confirmed there were no late revision submissions. One late initial submission was made for NSP volumes and is recorded as a breach in **section 12.6**.

Some inaccurate submission data was identified:

Incorrect information	Description	Affects	Report section
Profiles	EG1 applied for solar generation instead of PV1.	GENE and GEOL	6.1
Inactive with consumption	No consumption is reported while ICP status is inactive; some ICPs have known consumption while inactive and have not had status corrections.	GENE and GEOL	8.1
Unmetered load	Incorrect unmetered load submissions.	GEOL (4 ICPs)	12.2
Removed meters	Forward estimate on removed meters.	GEOL (2 ICPs)	12.2

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.7 With: Clause 15.12 From: 01-Sep-17 To: 16-Aug-18	**GENE** Solar generation is reported with the EG1 profile, when it should be reported with PV1. Consumption while an ICP is inactive is not always included in reconciliation submissions. **GEOL** Solar generation is reported with the EG1 profile, when it should be reported with PV1. Consumption while an ICP is inactive is not always included in reconciliation submissions. Incorrect submissions for four ICPs with unmetered load, and two removed meters. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	The controls are rated as moderate as they are sufficient to ensure that most submission information is correct, but there is some room for improvement. The impact is low: • the incorrect profile has a minor impact on settlement because the times are different • the incorrect unmetered load and forward estimate on removed meters will wash out with revision submissions and Gentrack processes will ensure that future initial submissions are correct • ICPs with disconnected consumption will be correctly reported for revision submissions if their status is corrected.

Actions taken to resolve the issue	Completion date	Remedial action status
Refer to applicable report sections noted above		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 4 Schedule 15.2

Code related audit information

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

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

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

Audit observation

NHH volumes 14-month revisions were reviewed for December 2016 to February 2017 to identify any forward estimate still existing.

Audit commentary

GENE

Review of the 14-month revisions showed that not all estimated meter readings had been replaced with validated meter readings. Estimated meter readings are not being made permanent at the 14-month point as required by the Authority.

Month	Forward estimate at revision 14
Dec 2016	674,283.18
Jan 2017	815,431.19
Feb 2017	557,224.74
Grand Total	2,046,939.11

A sample of ICPs with forward estimate remaining were reviewed. Forward estimate remained because ICPs had not received an actual read by revision 14, mainly due to access issues or being unable to locate the meter.

GEOL

Review of the 14-month revisions showed that not all estimated meter readings had been replaced with validated meter readings. Estimated meter readings are not being made permanent at the 14-month point as required by the Authority.

Month	Forward estimate at revision 14
Dec 2016	95,290.15
Jan 2017	92,868.64
Feb 2017	91,851.24
Grand Total	280,010.03

A sample of ICPs with forward estimate remaining were reviewed. Forward estimate remained because ICPs had not received an actual read by revision 14, mainly due to access issues. Some replaced meters also had forward estimate generated in error. This is recorded as non-compliance in **section 12.7**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 4 Schedule 15.2 From: Dec 16 (r14), Jan 17 (r14) and Feb 17 (r14)	**GENE** Some estimates were not replaced with permanent estimates by revision 14. **GEOL** Some estimates were not replaced with permanent estimates by revision 14. Potential impact: Medium Actual impact: Unknown Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate, because there is room for improvement in the read attainment processes which would reduce the quantity of forward estimate. The audit risk rating is assessed to be medium. Total forward estimate across the three months reviewed was 2,046,939 kWh for GENE and 280,010 kWh for GEOL. The forward estimate may differ from the actual consumption for the affected ICPs.

Actions taken to resolve the issue	Completion date	Remedial action status
Estimates not noted as Permanent as the Mth14 revision are because they do not meet the definition of Perinate Estimate. It has always been our view that the true state of volume calculation is displayed.		Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	
At the Mth7 revision and ICPs with estimates not yet permanent are investigated by the Reconciliation team to determine if any read can be obtained to validate estimates as permanent.t	Inplace	

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

Code reference

Clause 2 Schedule 15.3

Code related audit information

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

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

Audit observation

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

Aggregation and content of reconciliation submissions was reviewed, and the registry lists were reviewed.

Audit commentary

GENE

Compliance with this clause was assessed.

- Three active ICPs with meter category 3 or higher have submission type NHH. ICP 1000025992BPCB9 which was found to be category 3 with submission type NHH in the 2017 audit has been corrected.

ICP	Profile	Metering Category	Submission type	Comments
0001130018PSF65	RPS	3	NHH	Used to be Category 2. Was recertified as Category 3 on 24/11/17
0696299004PC30D	RPS	5	NHH	Haunui windfarm consumption channels are measured as HHR but they are converted to NHH and submitted as RPS. They need to be submitted as HHR.
0696299005PCF48	RPS	5	NHH	Haunui windfarm consumption channels are measured as HHR but they are converted to NHH and submitted as RPS. They need to be submitted as HHR.

- Unmetered load submissions were checked in **section 12.2** and found to be accurate. Corrections have been processed for one ICP with incorrect unmetered load identified in the 2017 audit, and two ICPs with incomplete unmetered load identified in the 2018 audit. These corrections are discussed in **section 8.1**.
- No profiles requiring a certified control device are used.
- No loss or compensation arrangements are required.
- Aggregation of the AV080 report is discussed in **section 12.3** and aggregation of the AV090 and AV140 reports is discussed in **section 11.4**.

GEOL

- Analysis of the registry list file found profile and submission flags appeared consistent and correct.
- GEOL does not supply any category 3 or higher ICPs.
- Unmetered load submissions were checked in **section 12.2.**
- No profiles requiring a certified control device are used.
- No loss or compensation arrangements are required.
- Aggregation of the AV080 report is discussed in **section 12.3**

GENH

- Analysis of the GENH list file found all profile and submission flags to be set correctly.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.9 With: Clause 2 Schedule 15.3 From: 01-Dec-16 To: 16-Aug-18	**GENE** One category 3 and two category 5 ICPs with NHH submission recorded. 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 these issues were not identified and resolved prior to the audit. The impact on settlement is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Instances will changes to submit as HHR. Meter change instances is reliant on obtaining HHR data from MEP.	30 October 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 three AV080 submissions for GENE and three AV080 submissions for GEOL, 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

GENE

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

GEOL

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

While the historic estimate included in the AV080 total estimate is correct in most cases, the proportion of historic estimate is calculated based on the number of days in the period, not Seasonal Adjusted Shape Values (SASV). This is recorded as non-compliance in **section 12.11**.

Audit outcome

Compliant

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

Code reference

Clause 4 and 5 Schedule 15.3

Code related audit information

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

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

Audit observation

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

Audit commentary

The process for managing shape files was examined. Shape files are downloaded from the RM website after each set of allocation results are published. The shape files are loaded into Orion and Derive by GENE. The upload process has controls which info the user whether the upload has completed successfully.

To assist with determining compliance of the Historical Estimate (HE) processes, GENE and GEOL tested a list of scenarios, and for some individual ICPs a manual HE calculation was conducted and compared to the system result. The following table shows that compliance was demonstrated in all cases provided.

Test	Scenario	Test Expectation	GEOL	GENE
A	ICPs become inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Pass	Pass
B	ICPs become active then inactive within a month.	Consumption is only calculated for the Active portion of the month.	Pass	Pass
C	ICPs become inactive, then active, then inactive again within a month.	Consumption is only calculated for the Active portion of the month.	No example provided	Pass
D	Network/GXP/Connection (POC) alters partway through a month.	Consumption is separated and calculated for the separate portions of where it is to be reconciled to.	Pass	Pass
E	ICPs start on the 1st day of a month.	Consumption is calculated to include the 1st day of responsibility.	Pass	Pass
F	ICPs end on the last day of a month.	Consumption is calculated to include the last day of responsibility.	Pass	Pass
G	ICPs start part way through a month.	Consumption is calculated to include the 1st day of responsibility.	Pass	Pass
H	ICPs end part way through a month.	Consumption is calculated to include the last day of responsibility.	Pass	Pass
I & J	ICPs are lost and won back in a month.	Consumption is calculated for each day of responsibility.	No example provided An example that switched in and out during the month was checked	Pass
K	Unmetered load for a full month	Consumption is calculating for unmetered portion of month prior to meter being added.	Pass	Pass
L	Unmetered load for a part month	Consumption is calculating for unmetered portion of month post meter being removed.	Pass	Pass
M	ICPs start on 1st and end on the last day of a month.	Consumption is calculated for each day of responsibility.	Pass	Pass
N	Rollover reads	Consumption is calculated correctly in the instance of meter rollovers.	Pass	Pass

Two issues were identified for the historic estimate calculation for GEOL in the 2017 audit and remained for part of the audit period. Both are cleared now that submission is completed from Derive based on Gentrack information:

- The proportion of HE is not being calculated correctly. Orion calculates the proportion of HE differently to the way it calculates the HE for the total submission. The proportion of HE is calculated by taking the number of days where HE was present, divided by the total days in the month then this is multiplied by the total submission. This figure is inaccurate, although it does not affect the total submission. This is recorded as non-compliance.
- Where an ICP changes between NSPs, Orion records all the normalised consumption against one NSP, and part of the consumption against the other, causing over reporting. Prior to the migration to Gentrack, Genesis corrected the data for ICPs with NSP changes based on the number of days rather than SASV shapes.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.11 With: Clause 4 and 5 of Schedule 15.3 From: Sep-17 To: Jul-18	Historic estimate proportions are incorrect for GEOL. Total historic estimate is calculated correctly for NSP changes but is not apportioned between the NSPs using the correct historic estimate process. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as strong because the issue has been cleared with the migration of the affected ICPs to Gentrack. Revisions will be correct.

Actions taken to resolve the issue	Completion date	Remedial action status
As above issue cleared.		Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
GEOL submissions now under Gentrack controls.		

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, including checking some forward estimate calculations.

Forward estimates were checked for accuracy by analysing the GR170 file for variances between for 14 months.

Audit commentary

GENE

For GENE, the forward estimate method varies as described below:

- Forward default estimate (FDE) applies where 0-1 actual readings available. FDE is set as 25 kWh per day per meter register.
- Forward standard estimate (FSE) applies where there are at least two actual readings available. FSE is calculated as the average daily consumption for each meter register, based on the actual reads available.

The daily estimate is multiplied by the number of days to be estimated. Without any adjustments for seasonality, the FDE volumes for shoulder months leading into winter are likely to be low and leading into summer are likely to be high.

The accuracy of the initial submission, in comparison to each subsequent revision is required to be within 15% and within 100,000kWh. The table below shows the number of balancing areas where this target was not met.

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

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
Feb 17	0	3	4	4	209
Mar 17	0	0	0	0	213
Apr 17	4	5	5	5	212
May 17	1	3	5		213
Jun 17	0	2	4		213

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
Jul 17	0	2	4		218
Aug 17	0	0	0		222
Sep 17	0	0	0		224
Oct 17	0	2	3		224
Nov 17	0	2	2		227
Dec 17	0	0			224
Jan 18	1	1			224
Feb 18	0	0			231
Mar 18	0	0			233

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Feb 17	-0.18%	-0.70%	-0.76%	-0.63%
Mar 17	-0.37%	-0.68%	-0.79%	-0.74%
Apr 17	4.74%	4.53%	4.21%	4.50%
May 17	-5.69%	-8.28%	-8.74%	-5.69%
Jun 17	-3.16%	-7.60%	-7.93%	
Jul 17	-3.76%	-6.30%	-6.88%	
Aug 17	1.13%	0.93%	0.67%	
Sep 17	0.89%	2.81%	2.27%	
Oct 17	1.88%	5.36%	5.74%	
Nov 17	1.30%	2.83%	3.01%	

Month	Revision 1	Revision 3	Revision 7	Revision 14
Dec 17	1.86%	4.41%		
Jan 18	-0.62%	0.07%		
Feb 18	0.21%	0.92%		
Mar 18	0.02%	0.90%		

I reviewed 14 balancing areas with variation between revisions of more than ± 15% and ± 100,000 kWh.

- 11 of the differences were caused by forward estimate that was higher or lower than the actual consumption. Ten of those were very close to either the kWh or percentage threshold and were caused by forward estimate that was higher or lower than the actual consumption.
- One difference was caused by a misread which caused high consumption that was not detected until revision 1.
- One difference was caused by a correction to split a DUML ICP between NSPs, which increased consumption for later revisions.

No errors were identified.

GEOL

For GEOL forward estimates are based on historic readings, and scaling is applied depending on the customer's usage profile group.

The accuracy of the initial submission, in comparison to each subsequent revision is required to be within 15% and within 100,000kWh. The table below shows the number of balancing areas where this target was not met.

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
Feb 17	0	0	0	0	100
Mar 17	0	0	0	0	100
Apr 17	0	0	0	0	99
May 17	0	0	0		100
Jun 17	0	0	0		102
Jul 17	0	0	0		105
Aug 17	0	0	0		107
Sep 17	0	0	0		108

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
Oct 17	0	1	0		110
Nov 17	0	1	1		111
Dec 17	0	0			113
Jan 18	0	0			113
Feb 18	0	0			114
Mar 18	0	0			116

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Feb 17	0.11%	0.55%	0.51%	0.66%
Mar 17	0.00%	-1.11%	-1.00%	-0.87%
Apr 17	-2.23%	-3.02%	-3.31%	
May 17	-3.97%	-7.30%	-7.52%	
Jun 17	-3.66%	-5.01%	-4.94%	
Jul 17	-2.91%	-3.95%	-4.01%	
Aug 17	4.16%	5.46%	5.42%	
Sep 17	3.43%	5.19%	5.34%	
Oct 17	5.30%	7.53%	7.67%	
Nov 17	6.80%	9.07%	9.12%	
Dec 17	2.73%	4.26%		
Jan 18	-0.18%	-0.56%		
Feb 18	0.11%	0.40%		

Month	Revision 1	Revision 3	Revision 7	Revision 14
Mar 18	0.19%	0.69%		

I reviewed two balancing area differences where the variation between revisions was more than ± 15% and ± 100,000 kWh. The main causes of the difference were that forward estimate was too high in the initial allocation. Both differences were just over the 100,000 kWh threshold.

An issue with incorrect creation of forward estimate was identified in the 2017 audit and is still present. If an ICP has a meter change during the submission month, the Orion reconciliation process creates forward estimate on both the replaced and new meters. This is recorded as non-compliance in **section 12.7**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.12 With: Clause 6 Schedule 15.3 From: GENE Feb 17 (r3, r7 & r14), Apr 17 (r1, r3, r7 & r14), May 17 (r3, r7 & r14), Jun 17 (r3 & r7), Jul 17 (r3 & r7), Oct 17 (r3 & r7), Nov 17 (r3 & r7), Jan 18 (r1 & r3) GEOL Oct 17 (r3), Nov 17 (r3 & r7)	**GENE** The accuracy threshold was not met for all months and revisions. **GEOL** The accuracy threshold was not met for all months and revisions. Potential impact: High Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as there is room for improvement. Initial data is replaced with revised data and washed up. A small number of submissions had differences over the threshold.

Actions taken to resolve the issue	Completion date	Remedial action status
At the time of the initial submission we endeavour to submit as accurately as possible. That the percentage change is reasonably static from Revision 3 onwards (with much of change occurring in Revision 1) indicates that any adjustments identified and required are done as soon in the revision cycle as possible.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 reports for GENE, GEOL and GENH were examined to identify all ICPs which had a profile change during the report period.

No profile changes were identified for GEOL and GENH.

A typical sample of ten ICPs with profile changes for GENE (or all if less than five changes were available) were reviewed to confirm that there was an actual or permanent estimate reading on the day of the profile change.

Audit commentary

GENE

In the event of a profile change, GENE uses a validated meter reading or a permanent estimate on the day that the change is effective. Genesis mainly uses the RPS profile for NHH, and a meter change normally occurs at the same time as the profile change.

A sample of 10 profile changes were checked and confirmed that an actual or permanent estimate existed on the day of the profile change.

GEOL

No profile changes were identified on the event detail report for GEOL.

GENH

No profile changes were identified on the event detail report for GENH.

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

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

Aggregation of NHH volumes is discussed in **section 12.3**, aggregation of HHR volumes is discussed in **section 11.4**.

Audit commentary

GENE and GEOL

Submission information is provided to the reconciliation manager in the appropriate format and is aggregated to the following level for both GENE, GEOL and GENH:

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

The 2017 audit found some GENE and GEOL ICPs were recorded against incorrect NSPs. The affected ICPs were re-checked and the issues were found to be cleared, except the GEOL ICP days for APS0111 which were not zeroed by the 14-month revision. This is discussed further in **section 11.2**.

GENH

GENH submissions are completed by AMS as GENH's agent. Compliance is recorded in AMS' audit report.

Generation

Generation submission is recorded as compliant.

Audit outcome

Compliant

13.2. Reporting resolution (Clause 9 Schedule 15.3)

Code reference

Clause 9 Schedule 15.3

Code related audit information

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

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

If the digit to the right of the second decimal place is less than five, the second digit is unchanged.

Audit observation

I reviewed the rounding of data on the AV090, AV140 and AV080 reports as part of the aggregation checks.

Audit commentary

GENE

Review of three AV080 NHH volumes reports confirmed that submission data is rounded to two decimal places.

Review of 11 AV-140 HHR aggregates and 11 AV-090 HHR volumes reports confirmed that submission data is rounded to two decimal places.

GEOL

Review of three AV080 NHH volumes reports confirmed that submission data is rounded to two decimal places.

GENH

Review of 11 AV-140 HHR aggregates and 11 AV-090 HHR volumes reports confirmed that submission data is rounded to two decimal places.

Generation

Data is not rounded until the submission process.

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 seven months of AV080 reports each for GENE and GEOL to determine whether historic estimate requirements were met.

Audit commentary

The quantity of historical estimates is contained in the submission file for GENE and GEOL and is not a separate report. The three, seven and 14-month revision files were examined for a selection of seven months and the tables below show that the thresholds were not met for some NSPs for some revisions.

GENE

Proportion of HE

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Dec 2016	-	-	161	300
Jan 2017	-	-	140	295
Feb 2017	-	-	163	300
Aug 2017	-	299	-	309
Sep 2017	291	297	-	312
Oct 2017	-	299	-	314
Nov 2017	314	-	-	314

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

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Dec 2016	-	-	99.35%
Jan 2017	-	-	99.06%
Feb 2017	-	-	99.33%
Aug 2017	-	99.10%	-

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Sep 2017	97.03%	98.75%	-
Oct 2017	-	98.54%	-
Nov 2017	95.44%	-	-

GEOL

Proportion of HE

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Dec 2016	-	-	102	184
Jan 2017	-	-	109	185
Feb 2017	-	-	109	187
Aug 2017	-	192	-	194
Sep 2017	189	194	-	196
Oct 2017	195	195	-	198
Nov 2017	192	-	-	198

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

Month	**Revision 3 80% Target**	**Revision 7 90% Target**	**Revision 14 100% Target**
Dec 2016	-	-	99.79%
Jan 2017	-	-	99.79%
Feb 2017	-	-	99.78%
Aug 2017	-	99.61%	-
Sep 2017	98.69%	99.64%	-

Month	Revision 3 80% Target	Revision 7 90% Target	Revision 14 100% Target
Oct 2017	98.56%	99.62%	-
Nov 2017	98.42%	-	-

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 13.4 With: Clause 10 of Schedule 15.3 From: Dec 16-Jan 17 (r14), Aug-Oct 17 (r7) and Sep-Nov 17 (r3)	**GENE** Historic estimate thresholds were not met for some revisions. **GEOL** Historic estimate thresholds were not met for some revisions. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate because some improvements can be made to ensure compliance. GENE and GEOL were reasonably close to the target in all cases. The impact is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
This outcome is closely related to provision of permanent estimates discussed in 12.8 above.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

CONCLUSION

GEOL's ICPs were migrated from Orion to Gentrack in July 2018. Following the migration, the GEOL systems used are the same as GENE's. Over time it is expected that processes for the two codes will be more closely aligned.

The audit found 38 non-compliance issues and seven recommendations are made.

Improvements are evident in the following areas:

- submission related issues for GEOL are either resolved or in the process of being resolved
- switching compliance has improved
- meter reading attainment rates remain at a high level, and have improved for both GENE and GEOL.

The main issues to note from this audit are as follows:

- distributed unmetered load submissions are not correct for many databases and some were not audited
- monitoring of disconnected ICPs with consumption should be improved
- ANZSIC code accuracy requires improvement
- better reporting is required for bridged and faulty meters in order to monitor compliance and accuracy of processes
- submission is not occurring for some ICPs with distributed generation and processes need strengthening in this area.

The matters raised are shown in the tables below.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk table provides some guidance on this matter and recommends an audit frequency of three months. I have considered this result in conjunction with the responses provided by Genesis and the fact that the overall risk rating has improved from 93 to 82. Genesis has demonstrated sound progress with improvements and I recommend an audit frequency of 12 months to provide sufficient time to complete the planned improvements.

PARTICIPANT RESPONSE