ELECTRICITY INDUSTRY PARTICIPATION CODE
RECONCILIATION PARTICIPANT AUDIT REPORT

For

Genesis Energy Limited

Prepared by: Steve Woods and Tara Gannon

Date audit commenced: 21 August 2017

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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.

The audit found 39 non-compliance issues, five recommendations are raised and four issues are recorded.

Improvements are evident in the following areas:

- most of the unmetered load submission issues are now resolved
- all DUML databases have had at least one audit
- validation reporting has been strengthened
- meter reading attainment rates remain at a high level.

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

- distributed unmetered load submissions are not correct for several databases
- revised submission information is not always provided to the Reconciliation Manager when historic issues are discovered
- some late and incorrect status updates and MEP nominations
- more than 50% of event dates later than five business days for GEOL
- a large number of late CS files.

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 I have also taken into consideration that they will be migrating GEOL ICPs into Gentrack and will discontinue using the Orion system. The system change will eliminate many of the non-compliances. My recommendation for the next audit date is nine months, which allows time for system changes to occur.

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	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	Two 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	Identified
ANZSIC codes	3.6	9(1)(k) of schedule 11.1	Some incorrect ANZSIC codes.	Strong	Low	1	Cleared

Unmetered load	3.7	Clause 9(1)(f) of Schedule 11.1	Incorrect unmetered details for two ICPs.	Strong	Low	1	Cleared
Management of Active status	3.8	17 of schedule 11.1	Some incorrect status updates	Moderate	Medium	4	Identified
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	Identified
Switching	4.2	3 of schedule 11.3	Incorrect AN response codes for GEOL. Only 15% of event dates within 5 business days.	Moderate	Medium	4	Identified
	4.3	5 of schedule 11.3	9 late CS files for GENE. Incorrect average daily consumption for GENE.	Moderate	Low	2	Disputed
	4.4	6(1) and 6A Schedule 11.3	8 late RR files for GEOL. 6 late RR files for GENE.	Strong	Low	1	Identified
	4.5	6(2) and (3) Schedule 11.3	2 RR files incorrectly rejected.	Strong	Low	1	Cleared
	4.8	10(1) of schedule 11.3	Incorrect AN response codes for GEOL.	Moderate	Low	2	Identified
	4.10	11 of schedule 11.3	Incorrect CS content for GEOL. Approx. 150 late CS files for GEOL. Incorrect CS	Moderate	Low	2	Unknown

			file content for GENE. Approx. 1,700 late CS files for GENE.				
	4.11	12 of schedule 11.3	42 late RR files for GEOL. 72 late RR files for GENE.	Strong	Low	1	Identified
	4.15	17 and 18 Schedule 11.3	One incorrect NW rejection by GEOL.	Strong	Low	1	Cleared
Shared unmetered load	5.1	11.14	Incorrect shared unmetered load.	Moderate	Low	2	Investigating
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.	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	Identified
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	Weak	Low	3	Identified

			ICPs, and four GEOL ICPs.				
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.	Moderate	Low	2	Cleared
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.	Moderate	Low	2	Identified
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.	Strong	Low	1	Identified
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.	Moderate	Low	2	Investigating
NHH correction	8.1	Clause 10.12, 10.24 & 10.43(3)	Some NHH corrections for GEOL and	Weak	Medium	6	Identified

		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	GENE were not processed completely and accurately. Some meters have not had consumption during a bypassed period reported.				
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.	Moderate	Low	2	Identified
Electronic readings	9.6	17(4)(f) of schedule 15.2	AMI events are not all being reviewed and actioned for GENE and GEOL.	Moderate	Low	2	Identified
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	Moderate	Low	2	Identified

			reconciliation manager's database.				
Electricity supplied	11.3	15.7	Electricity supplied information incorrect for GEOL. Electricity supplied revisions not conducted for GENH.	Moderate	Low	2	Identified
HHR aggregates	11.4	15.8	HHR aggregates file does not contain electricity supplied information.	Strong	Low	1	Identified
Permanence of meter readings	12.8	4 of Schedule 15.2	Some estimates not replaced at R14 for GENE and GEOL.	Moderate	Low	2	Identified
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.	Moderate	Low	2	Cleared
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	Moderate	Low	2	Identified

			the correct historic estimate process.				
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.	Moderate	Low	2	Identified
Profile changes	12.13	7 Schedule 15.3	One GEOL ICP did not have an actual read on the day of a profile change.	Strong	Low	1	Cleared
Provision of submission information	13.2	8 of Schedule 15.3	Some consumption and ICP days was reported against an incorrect NSP.	Moderate	Low	2	Identified
HE reporting	13.4	10 of Schedule 15.3	Historic estimate thresholds were not met for some revisions for GENE and GEOL.	Moderate	Low	2	Identified
					Future Risk Rating	**93**	
					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
Data transmission	2.3	Clause 20 of schedule 15.2	Zip and password protect DUML files.
Provision of registry information	3.5	Clause 9 Schedule 11.1	Run discrepancy reporting monthly to identify incorrect statuses.
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.
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.
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.

ISSUES

Subject	Section	Recommendation	Description
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.
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.
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.
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.

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

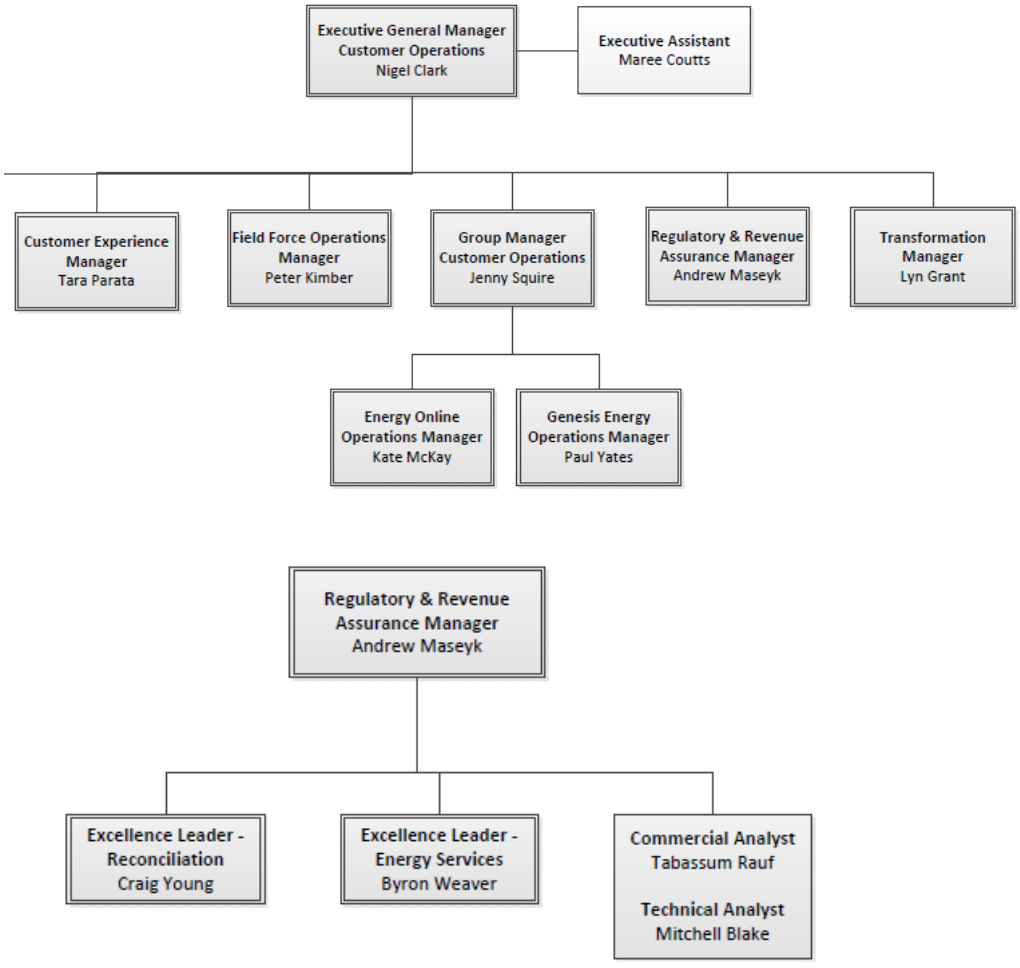
I checked the Authority's website to identify any relevant exemptions.

Audit commentary

Genesis has the following exemptions in place:

Exemption No.256. This exempts Genesis from submitting half hour aggregate data for category 1 or 2 ICPs. A code amendment is currently being prepared to revoke this requirement for ICPs with category 1 or 2 AMI meters. This exemption expires on 1 October, 2017 so it is still current at the time of this audit.

1.2. Structure of Organisation



1.3. Persons involved in this audit

Auditor:

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

Genesis personnel assisting with this audit:

Name	Title
Catherine Mace	Revenue Risk Investigator Liaison- GENE
Cindy Campbell	Customer Services Representative - GEOL
Craig Young	Reconciliation Leader - GENE
Elmarie Durand	Customer Services Representative - GEOL
Grace Hawken	Technical Specialist - Reconciliations Team - GEOL
Pania Doak	Operational Excellence Leader - GEOL
Shweta Arora	Reconciliation Services Analyst – GENE
Shantelle Comer	TOU facilitator – GENE/GENH
Julia Jones	Technical Specialist – Reconciliations Compliance
Donna Barakat	Accountant
Dianne O'Riley	New Connections

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

Audit observation

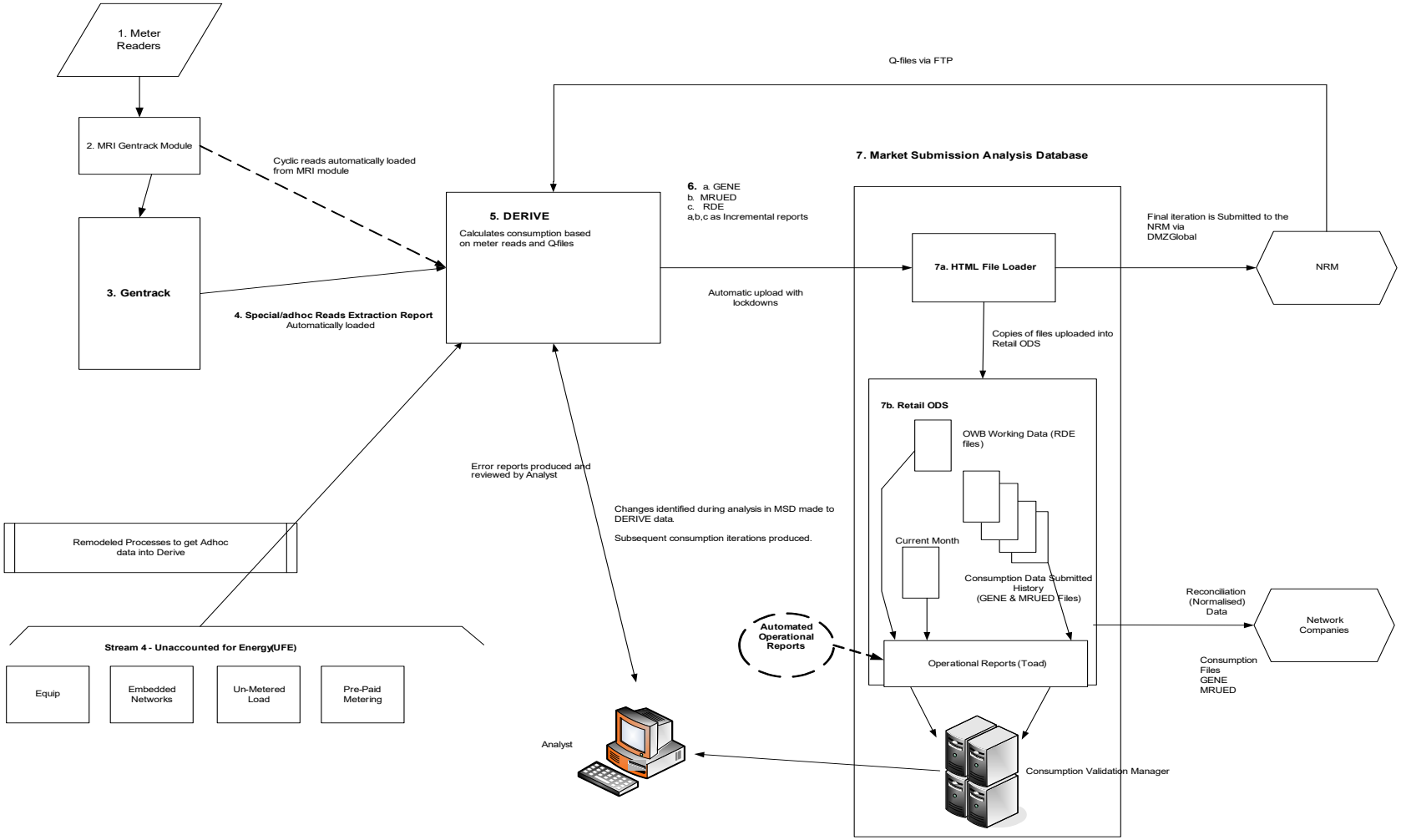
This area was examined by interview to confirm Genesis understands their obligations.

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

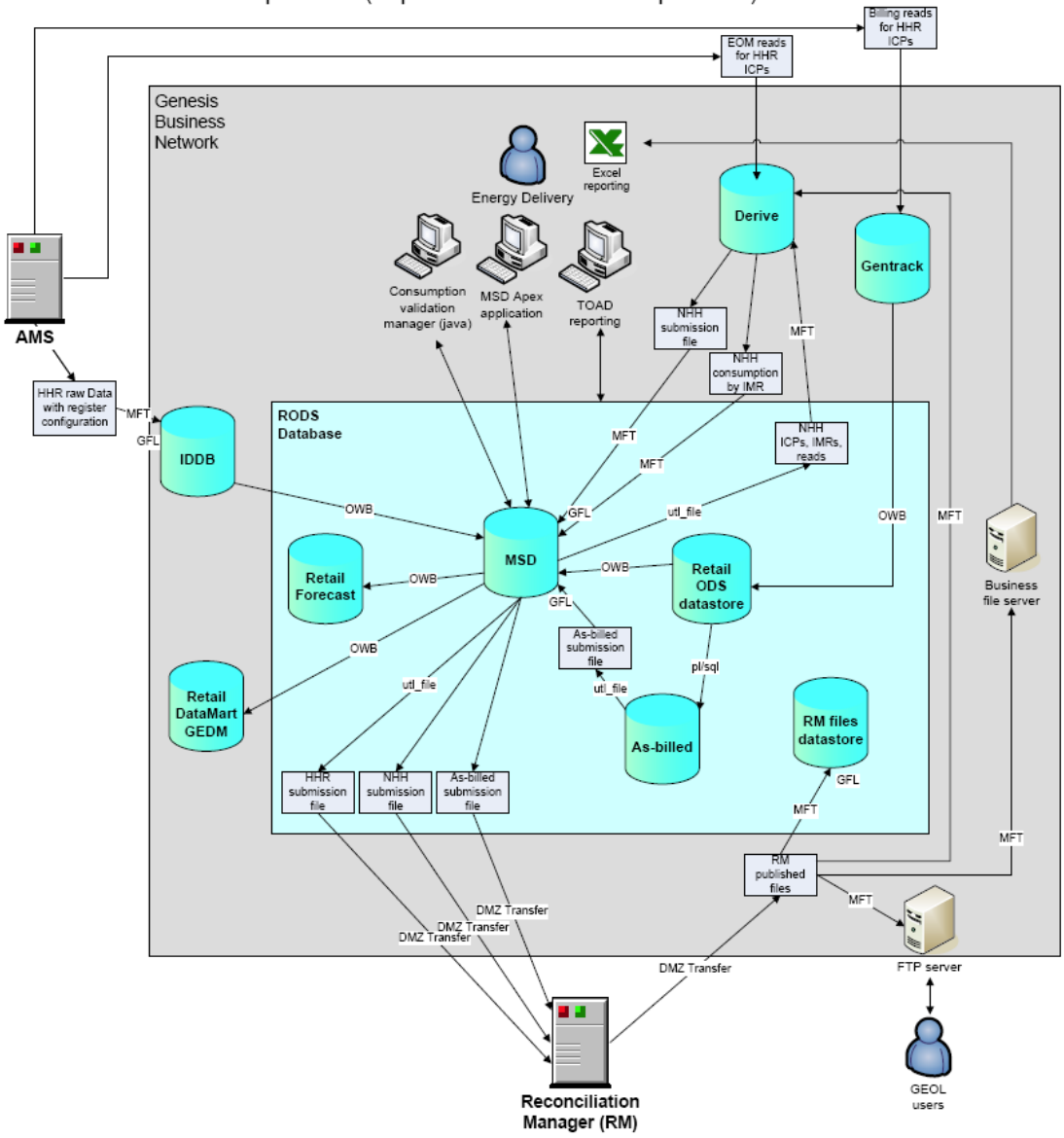
A diagram of Genesis's retail system configuration is shown below.



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.

The GEOL systems are the same as those recorded in the 2016 audit and are listed below:

Hardware:

IBM Server

Hewlett Packard workstation

Software:

Agility CIS Ltd – Orion CMS

EMS (NRM) File_Format_Checker_V6.2

Microsoft Excel

Microsoft Windows

Microsoft Windows Server 2003

Microsoft Windows Server 2008

Microsoft Windows Server 2008 R2

VMWare ESXi 4.1

Details of system back-up arrangements:

Data is backed up to a tape library. Weekly tapes are stored in a locked fireproof data safe. Weekly and monthly tapes are stored off site by a tape storage service.

Back-up regime = Daily, Weekly and Monthly.

Orion CMS data is replicated to a Disaster recovery server hosted by Genesis in Huntly.

1.6. Breaches or Breach Allegations

Genesis has had three breach allegation/s recorded by the Electricity Authority during the audit period:

Ref	Breach Description	Clause	Date	Outcome
1610GENE1	Tekapo B G3 revenue metering VTs are due for re-certification by 28 September 2016. A planned outage for Tekapo B G3 is scheduled from 08 October 2016. Genesis Energy considers it is preferable to carry out the calibration and re-certification during this outage to eliminate a disruption of signals feedback to Transpower SCADA that could occur during metering component calibration and re-certification if the unit was online.	Part 10 clause 10.20 (b) Part 10 clause 10.26 (2) Part 10 clause 10.38 (a)	15/12/16	declined to pursue without warning
1611GENE1	The event date in GEOL CS file is prior	Part 11 Schedule 11.3 clause 10 (1)	15/12/16	Early closure

	to Nova NTMI requested date.	(b) (i)		
1704GENE2	Genesis is alleged to have contacted the customer (ICP 0000124716TRB3F) of Giving Energy, a switch save protected trader, during the switch save protection period and offered "a new and cheaper deal for electricity". The customer advised Giving Energy and advised Giving Energy they wished to cancel the switch.	Part 11 clause 11.15AB (4)	27/06/17	declined to pursue with strong warning

1.7. ICP Data

Genesis provided list file for each of their participant codes as at May 2017 and the information is summarised by metering category and status in the tables below.

GENE

Metering Category	2017	2016	2015	2014
1	418,547	442,114	447,053	454,971
2	2,703	2,865	2,691	3,045
3	1	0	0	1
4	0	0	0	0
5	2	2	2	2
9	1,172	1,132	916	947
Blank	2,387	1,161	1,064	1,217

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

GEOL

Metering Category	2017	2016	2015	2014
1	86,110	82,861	70,821	67,974
2	191	237	276	338
3	0	0	0	1
4	0	0	0	0
5	0	0	0	0
9	12	9	14	12
Blank	7	7	12	18

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

GENH

Metering Category	2017	2016	2015	2014
1	82	77	78	46
2	753	635	546	456
3	452	347	262	193
4	150	91	73	51
5	11	15	14	11
9	1	0	1	0
Blank	1	0	0	0

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

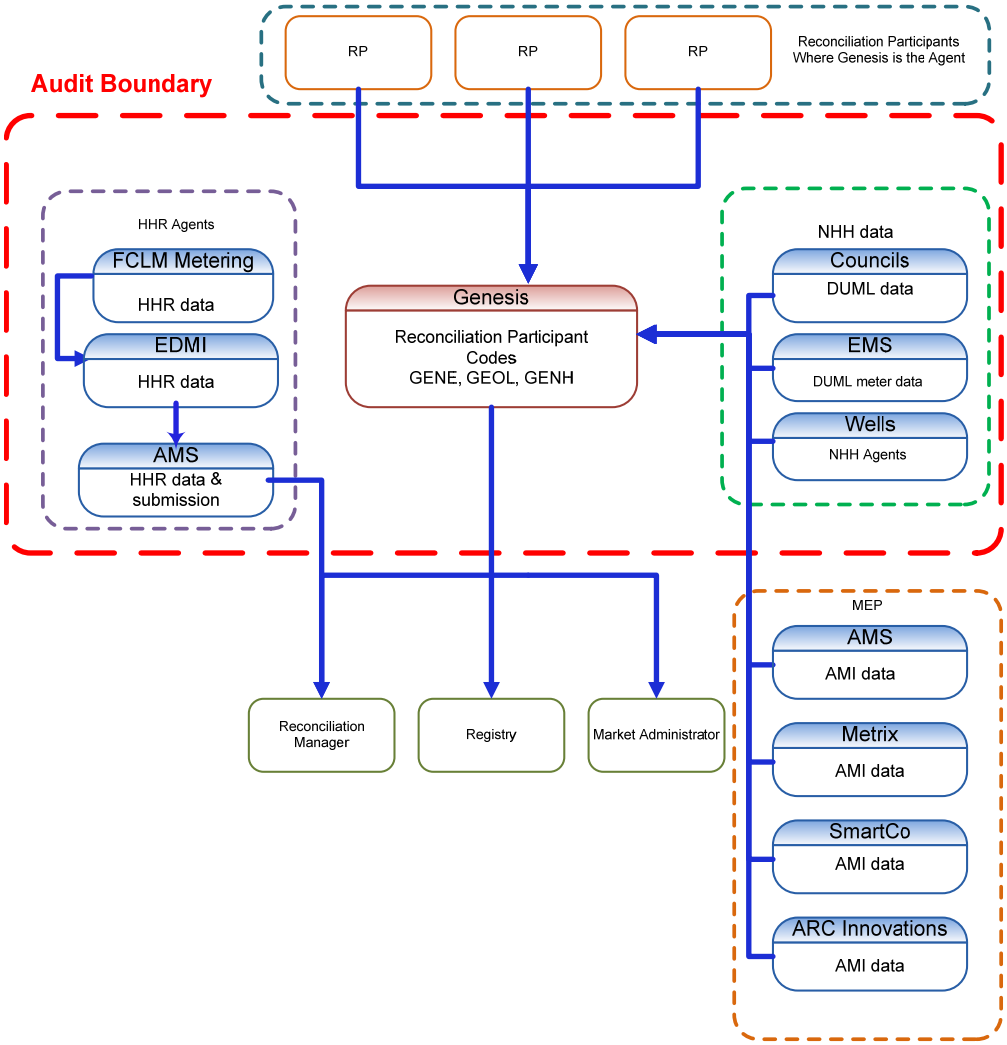
The audit was conducted in accordance with the Guideline for Reconciliation Participant Audits version 7.1.

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 21-24, 2017 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.


Audit Boundary
RP
RP
RP
Reconciliation Participants
Where Genesis is the Agent
HHR Agents
FCLM Metering
HHR data
EDMI
HHR data
AMS
HHR data &
submission
Genesis
Reconciliation Participant
Codes
GENE, GEOL, GENH
NHH data
Councils
DUML data
EMS
DUML meter data
Wells
NHH Agents
MEP
AMS
AMI data
Metrix
AMI data
SmartCo
AMI data
ARC Innovations
AMI data
Reconciliation
Manager
Registry
Market Administrator

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
(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 V7.1. Their audit reports are attached as appendices, and comments are included in this report in relation to any issues found.

1.10. Summary of previous audit

Genesis provided a copy of the last audit, conducted in July 2016 by Steve Woods of Veritek Limited. The status of the issues identified in that audit are recorded below:

Table of Non-Compliance

Subject	Section in previous report	Clause	Non-compliance	Status
GIP metering	1.9.4	10.26(7) of part 10	Certification dates not provided to RM for Tuai within 10 business days.	Cleared
Metering Certification	1.9.5	10.33(2) of 10	Certification of 7 ICPs not completed within five days of livening.	Cleared
Switching	2.1.2	3 of schedule 11.3	"OC" code used incorrectly in GEOL AN file for vacant sites with "the Occupier" as the customer.	Still existing
	2.1.3	4 of schedule 11.3	Less than 50% of switch dates within five days for GEOL.	Still existing
	2.1.4	5 of schedule 11.3	GENE some late CS files. GEOL 4 late CS files. GENH 2 late CS files. Incorrect last read date sent for GENE.	Still existing
	2.1.5	6 of schedule 11.3	GENE 19 late RR files. GEOL 16 late RR files.	Still existing
	2.2.2.	10 of schedule 11.3	"OC" code used incorrectly in some GEOL. GENE some late CS files. GEOL some late CS files.	Still existing
	2.2.3	11 of schedule 11.3	GENE using the date of last estimate as the date of last actual.	Cleared
	2.2.4	12 of schedule 11.3	GENE 123 late RR files. GENE 2 late AC files. GEOL 37 late RR files.	Still existing
	2.3.3	16 of schedule 11.3	One late CS file.	Still existing

Subject	Section in previous report	Clause	Non-compliance	Status
	2.4	18(d) of schedule 11.3	One late AW file.	Cleared
Provision of Information to the Registry	2.9.2	11.7 of part 11 & 9 & 12 of schedule 11.1	Registry notified late for 714 ICPs.	Still existing
Changes to Registry Information	2.9.3	11.8 of part 11 & 10 of schedule 11.1	Registry notified late for 2,341 ICPs.	Still existing
Retailers to Nominate MEP	2.9.8	10.18 of part 10 & 11.18(4)&(5) of part 11	One active ICP with no MEP nominated.	Still existing
Registry Discrepancies	2.9.9	11 of schedule 11.1	Registry discrepancies between Genesis' records and the registry.	Still existing
ANZSIC Codes	2.9.10	(1)(k) of schedule 11.1	30 active GEOL ICPs with no ANZSIC code. Some GENE and GEOL ICPs with "don't know" ANZSIC code which could have been determined.	Still existing
Management of "Active" Status	2.9.12	12 & 17 of schedule 11.1	Incorrect ICP status recorded on the registry.	Still existing
Management of "Inactive" Status	2.9.13	12 & 19 of schedule 11.1	Incorrect ICP status recorded on the registry. Some inactive ICPs have consumption recorded, indicating the status may be incorrect. Remedial action historically not conducted "…as soon as practicable …"	Still existing
Unmetered Threshold	2.10.1	10.3(b) of part 10	17 UML connections exist which exceed 6,000 kWh per annum.	Still existing

Subject	Section in previous report	Clause	Non-compliance	Status
Unmetered Load	2.10.2	9(1)(f) of schedule 11.1	Submission information incorrect for some GENE unmetered connections.	Still existing
Shared unmetered load	2.10.3	11.14 of part 11	3 GENE ICPs with incorrect shared unmetered load recorded. 1 GEOL ICP with incorrect shared unmetered load recorded. 1 GEOL ICP with no shared unmetered load recorded.	Still existing
NHH metering information	3.3.3	5(b) & (c) of schedule 15.2	Checks for phase failure and broken or missing seals not conducted and recorded.	Cleared
Interrogate Meters Once	3.3.5	7(1) & (2) of schedule 15.2	Validated meter reading not obtained during the period of supply for all ICPs.	Still existing
Interrogate meters annually	3.3.6	8(1) & (2) of schedule 15.2	Incorrect reporting provided to the authority by GEOL overstating the number of unread ICPs at 12 months.	Still existing
NHH meter reading every 4 months	3.3.7	8(1) & (2) of schedule 15.2	Best endeavours not met for GEOL with regard to no reads by four months.	Still existing
NHH correction	4.1.1	19(1) of schedule 15.2 & 15.2(2) of part 15	NHH correction not always resulting in correct submission information.	Still existing

Subject	Section in previous report	Clause	Non-compliance	Status
NHH validation	4.2.4	10.12, 10.24 & 10.43(3) of part 10. 19 of schedule 11.1, 2(1)(b) of schedule 15.3 and 15.2 of part 15	62 meters bypassed leading to no consumption being recorded for the bypassed period.	Still existing
HHR Meter Data Validation	4.2.5	17(4)(f) of schedule 15.2	AMI events not being reviewed and actioned.	Still existing
Electricity supplied	5.3	15.7 of part 15	Electricity supplied information incorrect for GENH and GEOL.	Still existing
HHR aggregates	5.4	15.8 of part 15	HHR aggregates file does not contain electricity supplied information.	Still existing
Permanence of Meter Readings	6.1.2	4 of schedule 15.2	Some estimates not replaced at R14. GENE and GEOL have FE at 14 months that could be considered HE.	Still existing
HE calculations	6.1.4	5 of schedule 15.3	Proportion of HE incorrectly calculated.	Still existing
FE accuracy	6.1.5	6 of schedule 15.3	FE accuracy threshold not met. GEOL double submitting when aggregation factors change.	Still existing
Submission Information to the RM	6.2.3	8 of schedule 15.3	Submission occurred against the incorrect NSP during the audit period for one ICP. Over submission occurred in November 2015 due to a profile change without zeroing the old combinations. GEOL zeroing did not occur in October and November 2015. Under submission occurred for the initial submission for some NSPs where the new profiles were present.	Still existing

Subject	Section in previous report	Clause	Non-compliance	Status
Historic estimates	6.2.4	10 of schedule 15.3	HE thresholds not met for some NSPs.	Still existing
Deriving submission information	2.9.3	11(1) of schedule 15.3	Not compliant 9 databases.	Still existing
ICP identifier	2.9.3	11(2)(a) of schedule 15.3	Not compliant 7 databases.	Still existing
Location of load	2.9.3	11(2)(b) of schedule 15.3	Not compliant 2 databases.	Still existing
Capacity of load	2.9.3	11(2)(d) of schedule 15.3	Not compliant 5 databases.	Still existing
Tracking of load changes	2.9.3	11(3) of schedule 15.3	Not compliant 5 databases.	Still existing
Audit trail	2.9.3	11.4 of schedule 15.3	Not compliant 3 databases.	Still existing
Audit conducted	2.9.3	11(5) of schedule 15.3	Not compliant 15 databases.	Cleared

Table of Recommendations

Subject	Section	Clause	Recommendation for Improvement	Status
Embedded generation	1.9.6	10.24(b) of part 10	Contact customers to confirm if Distributed Generation is connected before requesting the Distributor to update their records.	Cleared
		10.13 of part 10	Develop a process to manage any GEOL ICPs that have distributed generation indicated but no injection channel recorded.	Still existing

Subject	Section	Clause	Recommendation for Improvement	Status
Data transmission	1.14	20 of schedule 15.2	Zip and password protect DUML files.	Still existing
Registry Discrepancies	2.9.9	11 of schedule 11.1	Include any ICP not in Gentrack but that is recorded as Genesis in the registry.	Cleared
		11.14 of part 11 & 11 of schedule 11	Check for shared unmetered load being added to existing ICPs and check load calculation against the Distributors.	Cleared
		11 of schedule 11.1.	Identify all ICPs where the daily unmetered kWh was incorrectly changed to 1 from 0.5 in 2013 and notify other retailers of the error.	Not completed
		11.14 of part 11 & 11 of schedule 11.	Check for shared unmetered load for GEOL.	Cleared
		11 of schedule 11	Increase scope of registry validation to include a comparison between Derive and Gentrack.	Not completed
Unmetered Threshold	2.10.1	10.3(b) of part 10	Check 17 ICPs to confirm whether they may be DUML and to confirm the accuracy of the daily kWh figure.	Still existing
Interrogate meters once	3.3.5	7(1)&(2) of schedule 15.2	Develop reporting for ICPs not read during period of supply for GEOL.	Still existing
Interrogate meters annually	3.3.6	Clause 8(1)&(2) of schedule 15.2	Review report logic to ensure it captures only metered ICPs that have had no read for the previous 12 months.	Still existing
NHH correction	4.1.1	19(1) of schedule 15.2 & 15.2(2) of part 15	Implement processes and reporting to ensure changes result in correct submission. Validate Gentrack meters vs Derive meters. Peer review all corrections and adjustments.	Still existing

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 to any person under Part 15 is:

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

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

Audit observation

The process to find and correct incorrect information was examined 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. For GENE & GENH a registry discrepancy report is run on a weekly basis to check for any discrepancies that are not captured through the registry notification process. As there is no registry interface with Orion, the GEOL registry validation process is manual. The daily notification files from the registry are run through a script which creates exception files to be manually worked through.

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

GENE:

Issue	2017 Qty	2016 Qty	2015 Qty	Comments
ICPs at status (1,11) "De-energised at meter box" in the registry	8	0	2	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	62	113	This number continues to reduce year on year. This is discussed further in Section 3.9 "Management of Inactive Status" below.
Blank ANZSIC codes	0	0	267	None found in this audit.
ANZSIC T994/994000 "Don't know"	3	768	1,456	See Section 3.6.
ANZSIC "T999" not stated	0	0	1	None found in this audit.
Category 9 -Active with MEP and UML "N"	23	22	50	See Section 3.5.
Active ICP with no MEP	32	1	-	See Section 3.4.
ICPs with Distributor unmetered load populated but retail unmetered load is blank	17	14	206	See Section 3.7 "Changes to Unmetered Load".
Standard unmetered load different to distributor field	10	27	24	See Section 3.7 "Changes to Unmetered Load".
ICPs with unmetered load flag Y but load is recorded as zero	0	67	41	None found in this audit.
Shared unmetered load ICPs with no UML	0	1	28	None found in this audit.
Shared unmetered load ICPs with an unmetered load = zero	0	0	2	None found in this audit.
Shared unmetered load ICPs with incorrect load	5	5	-	See Section 5.1 "Maintaining Shared Unmetered Load".
Unmetered load differences between registry and Derive	0	1,226	Not checked	None found in this audit.

The previous report recorded that improvements were required to the unmetered load and shared unmetered load validation processes. The validation now identifies all relevant unmetered load and differences between distributor and retailer fields.

During the previous audit, I recorded that GENE did not use the unmetered load field on the registry for reconciliation or billing purposes. The Derive system contained unmetered load details that were used for reconciliation purposes. There was an option to create or select a "load characteristic" for each ICP based on known information. If a load characteristic was not selected then a default forward estimate of 25 kWh per day was used for reconciliation. There was no validation between the Derive field and the registry field. This created an issue for any ICPs that switch out, because the winning retailer would rely on the registry field. GENE now uses the daily unmetered load field in Gentrack, which is validated against the registry for submission purposes.

A comparison was made between Derive and the registry for all unmetered load ICPs. There were no differences between Derive and the registry data for any ICPs.

During the previous audit I recorded that 289 of the discrepancies where Derive was lower than the registry were due to the registry being changed to a daily kWh figure of 1 from 0.5 at the time ANZSIC codes were loaded to the registry in August 2013. It is likely that Derive was correct and the registry was incorrect. The problem here is that many ICPs will have switched out in the meantime and the new retailer will be using the incorrect figure of 1 and will be over submitting. I recommended Genesis identified all ICPs where the registry was changed to the incorrect figure and notify all other retailers of this matter. Genesis did not adopt this recommendation.

GENH:

Analysis of the GENH list file only found one issue. There are two ICPs with UML recorded. These were checked on site and it was found submission was not occurring for one of these. The ICPs are 0000275289HB0B4 and 0000565130KEC82. This is discussed further in Section 3.7.

GEOL:

Issue	2017 Qty	2016 Qty	2015 Qty	Comments
Status of (1,12) "New connection in progress" with an initial energisation date populated	8	2	1	See Section 3.9 "Management of Inactive Status.
ICPs at status (1,11) "De-energised at meter box" in the Registry	0	0	23	None found in this audit.
Blank ANZSIC codes	0	30	69	None found in this audit.
ANZSIC T994/994000 "Don't know"	16	49	114	See Section 3.6 "ANZSIC Codes" below.
ICPs with incorrect unmetered load	0	3	0	None found in this audit.
ICPs with Distributor unmetered load populated but retail unmetered load is blank and unmetered flag = N	0	6	0	None found in this audit.

ICPs with incorrect shared unmetered load	0	1	1	None found in this audit.

The validation processes appear to be operating significantly better than during the last audit, with the number of discrepancies being much lower.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 15.2 From: 01-Aug-16 To: 31-Jul-17	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
Implementation of registry validation processes has made significant reductions in the quantity of non-compliances found year after year.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis Energy will include further controls targeting MEP/Status/UML relationships of ICPs to the registry validation process.	Controls in place October 2018, corrections of errors completed no later February 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 meter reading data, AMI data and DUML data.

Audit commentary

AMI read data from MEPs is transmitted to Genesis via SFTP, which ensures the security and integrity of the data.

NHH meter readings are provided via SFTP.

This clause relates to metering data and all metering data is transmitted securely. Data from some streetlight databases is emailed as text files or spreadsheets and although this is not "metering data"; I recommend these files are zipped with password protection.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clause 20 of schedule 15.2	Zip and password protect DUML files.	Genesis Energy has requested to third parties that the information transferred is password protected. We have initiated this with third parties in past, but always falls down at third party end.	Identified

Audit outcome

Compliant

2.4. Audit trails (Clause 21 Schedule 15.2)

Code reference

Clause 21 Schedule 15.2

Code related audit information

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

The audit trail must include details of information:

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

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

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

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

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

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

Audit observation

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

Audit commentary

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

Audit observation

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

Code reference

Clause 10.32

Code related audit information

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

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

Audit observation

The new connection process was 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. Metering certification (Clause 10.33(2))

Code reference

Clause 10.33(2)

Code related audit information

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

Audit observation

Event detail reports for the audit period were reviewed to identify new connections during the audit period.

Audit commentary

All newly connected ICPs which are not confirmed to have unmetered load, have current metering in place.

Analysis of the list file and event detail report found that metering was certified within five business days for all new connections.

Audit outcome

Compliant

2.11. Arrangements for line function services (Clause 11.16)

Code reference

Clause 11.16

Code related audit information

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

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

Audit observation

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

2.12. Arrangements for metering equipment provision (Clause 10.36)

Code reference

Clause 10.36

Code related audit information

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

Audit observation

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. The process is detailed in Section 2.9.

Audit outcome

Compliant

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

Code reference

Clause 11.7(2)

Code related audit information

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

Audit observation

The new connection process was examined in detail 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 about an ICP changes, the trader must notify the registry of the change no later than five business days after the change.

Audit observation

The 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 10 ICPs per retailer code where updates were late to determine the root cause or trends. If there were less than 10 late updates I checked them all.

Audit commentary

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

GENE

GENE had 19 reconnections backdated 30 days or more in the registry. This a reduction from the 146 reconnections recorded in 2016. All of these were checked with the following findings:

- the status update did not automatically populate the registry from Gentrack for three ICPs
- validation processes identified incorrect statuses for the other 16 ICPs, but processing the changes was delayed due to resourcing.

GEOL

GEOL had 20 reconnections backdated 30 days or more in the registry. This an increase from the 15 reconnections recorded in 2016. All of these were checked and they all related to status corrections found through validation.

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	2015	4,291	2,713	1,578	10.5	63%
	GEOL	2015	493	224	269	422	45%
	GENH	2015	0	-	-	-	-
	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**	**-**	**-**	**-**	**-**

The table below shows by company code, the registry updates where the status had been updated to "inactive" for the three months from January through to March 2017. 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 and ready for decommissioning	GENE	2015	3,725	3,363	362	7.3	90%
	GEOL	2015	238	182	56	16.2	76%
	GENH	2015	1	1	0	1	100%
	GENE	2016	5,340	4,838	497	6.3	91%
	GEOL	2016	241	223	18	3.2	92%
	GENH	2016	0	-	-	-	-
	GENE	**2017**	**3,789**	**3,460**	**329**	**3.9**	**91%**
	GEOL	**2017**	**330**	**64**	**266**	**21**	**29%**

	GENH	**2017**	**1**	**0**	**1**	**8**	**0%**
Change to de-energised ready for decommissioning	GENE	2015	419	62	357	43.8	15%
	GEOL	2015	26	12	14	282	43%
	GENH	2015	1	0	1	9	0%
	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%**

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

GENE has maintained its performance at 91% for updating the registry within five business days of the event. The duration has reduced to 3.9 days. The process is automated and the work order is issued to AMS for remote disconnections or to Wells if a field visit is required. The SLA requires notification back to Genesis within seven days of the work being completed. There were 66 ICPs updated greater than 30 days after the effective date. A sample of 20 of these were examined with the following findings:

- five were corrections to status events but were seemingly unnecessary
- 12 were for ICPs which had been disconnected for credit, then it was determined payment would not be received imminently so the status was updated - credit disconnection statuses are not updated immediately
- one was a backdated decommissioning event
- one was a system error
- one was a backdated status change following notification of a fire.

GEOL's compliance has reduced from 92% to 29% and the average days has increased to 81. The credit team update Orion as the work is notified from the contractors. The reconciliation team update the registry. 27 of the updates took greater than 30 days to be updated. 10 of these were checked on site and I found the following issues:

- six ICPs were disconnected by GEOL but the connection status was not updated in Orion, so the reporting run by the reconciliation team to identify status mis-matches did not identify these
- one ICP should be at status 1,12 not 1,10
- three incorrect statuses were identified by validation reporting and were corrected back to the date of the disconnection.

One GENH ICP was de-energised and the update occurred after eight business days, following notification of a safety disconnection by the Distributor, due to flooding.

Inactive Status – Ready for Decommissioning

GENE's compliance has reduced from 27% to 9%. There were 56 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's compliance has reduced from 51% to 41%. There were seven ICPs backdated to "ready for decommissioning" by 30 days or more in the registry. All of these were checked on site and it was found that four related to late notification from either the network or the field contractor. The remainder were identified by a status accuracy clean-up project.

Three GENH ICPs were changed to inactive, ready for decommissioning. Two were due to reconfiguration of supplies and late notification from MEPs or Distributors. One was a safety disconnection with a late update.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.3 With: Clause 10 of schedule 11.1 From: 01-Mar-17 To: 30-Jun-17	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
All cases of back dated Registry event dates arise from our Registry vs systems validations identifying and correcting errors. In line with ensuring accurate data in the Registry Genesis will continue to use correct event dates irrespective of the file date.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Back dating of Registry event dates will continue while traders run validation/correction processes.	Ongoing	

3.4. Trader responsibility for an ICP (Clause 11.18)

Code reference

Clause 11.18

Code related audit information

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

A trader ceases to be responsible for an ICP if:

- *another trader is recorded in the registry as accepting responsibility for the ICP (clause 11.18(2)(a)); or*
- *the ICP is decommissioned in accordance with clause 20 of Schedule 11.1 (clause 11.18(2)(b)).*
- *if an ICP is to be decommissioned, the trader who is responsible for the ICP must (clause 11.18(3)):*
    - *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 August 2017, was examined to confirm that all active metered ICPs have an MEP recorded. This analysis found two active GEOL ICPs and 30 GENE ICPs with no MEP or meter details recorded in the registry. Both GEOL ICPs were checked and nine of the GENE 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

In all cases, an MEP had been nominated and had accepted that nomination. It is the MEPs responsibility to load metering to the registry. For ICPs 0000001143KP493 and 0270938461LC9E9 the incorrect MEP has been nominated and a correction is required.

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

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

Non-compliance	Description
Audit Ref: 3.4 With: Clause 11.18 From: 01-Mar-17 To: 30-Jun-17	Two incorrect MEP nominations. 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 because there is room for improvement with regard to the identification of incorrect nominations. Settlement and billing is still occurring because Genesis has the metering details recorded. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis Energy has investigated and found individual errors made by staff. Refresher training included in team updates.	December 2017	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Two instances out of the thousands nominated do not indicated need for system or process change.		

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

Code reference

Clause 9 Schedule 11.1

Code related audit information

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

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

- *except if the ICP exists for the purposes of reconciling an embedded network or the ICP has distributor status, the trader must provide the relevant business classification code applicable to the customer (clause 9(1)(k)).*

The trader must provide information specified in (a) to (j) above within 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 have examined the event detail reports for the audit period 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 updated within five business days for 928 of 1,930 ICPs.

GENE

The average time to update and the percentage compliance has reduced slightly since 2016. 20 late updates were checked and it was found that five late updates were due to late field notifications, 14 were due to processing delays in updating Gentrack and one was a switch in with a status of new connection in progress. The processing delays were due to Gentrack being updated with metering details but not with the active status. This leads to no submission until the status is changed. Reporting is in place for the 3-month revision and I recommend this reporting is run monthly to ensure these issues are identified in time for the Day 4 or Day 13 submissions.

Recommendation	Description	Audited party comment	Remedial action
Clause 9 Schedule 11.1	Run discrepancy reporting monthly to identify incorrect statuses.	Auditor comments are noted and we have raised reccomendations for process improvements in new connection process to prevent root cause. Reporting to capture for submissions is done for initial and each revision currently.	Identified

GEOL

The percentage compliance has improved to 76% but the cycle time is slightly longer. I checked seven late updates and found that two had incorrect event dates and late field notification caused the remaining late updates. Changes in Orion are still required to be manually updated to the registry.

GENH

12 new connections were identified in the event detail report. 11 were updated to active on the registry within five business days. The team update the registry once they have confirmation that the site has been energised rather than wait for the paperwork, which had previously caused backdating in some instances. The one late one was because it was intended to be a “BTS to permanent” but it ended up that the BTS stayed, so a new ICP was required.

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	2015	757	430	327	7.6	57%
	GEOL	2015	28	24	4	14.8	86%
	GENH	2015	5	4	1	3.4	80%
	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%**

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	17	9	8
GEOL	4	3	1
GENH	5	1	4

There were some differences between the energisation 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.

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 40 late nominations. I checked 13 of these and found the incorrect MEP was originally nominated in ten cases and late registry population caused the other three updates.

Seven GEOL nominations were late, five were due to nominating the incorrect MEP and two were due to late registry population.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.5 With: Clause 9 of schedule 11.1 From: 01-Mar-17 To: 30-Jun-17	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: 2
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
Genesis Energy has investigated and found these instances to be futher symptoms of the same root cause of 3.4 and reccomendation above.	December 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Process development in new connections to ensure accuracy and timliness.	March 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 16 ICPs with unknown ANZSIC codes. I checked google streetview and the business type could be determined for two and seven were residential.

GENE has three ICPs with unknown ANZSIC codes. I checked google streetview and the business type could be determined for one and one appears to be residential.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.6 With: Clause 9(1)(k) of schedule 11.1 From: 01-Aug-16 To: 31-Jul-17	Some incorrect ANZSIC codes. 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 were strong and the number of incorrect codes was very small. 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
Repeat sysmpom of 2.1 above. ANZSIC codes are part of the registry validation process that is each month. As worked monthly, when measured on any given day there is likely to be instances not yet corrected. Low level (19 out of ~ 500,000 ICPs) indicates control is sufficent and does not justify additional expense to run more frequently	October 2017	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis Energy do use google in corrections, but are wary of age of view giving incorrect business type in some instances.	October 2017	

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 August 2017 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 1.0kWh per day. 1.0 kWh per day was chosen as a sample only; this does not indicate compliance is achieved if an error is found that is less than 1.0 kWh per day.

Audit commentary

GEOL

Examination of the list file found 181 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 are no ICPs where the Distributor has unmetered load recorded but GEOL has none. All four where the load could be checked against the Distributors load (where populated in the recommended format) were found to be correct.

GENE

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 3,664 ICPs with unmetered load indicated:

- 574 ICPs where GENE has unmetered load recorded and the Distributor has none.
- 17 ICPs with the Distributor recording unmetered load but GENE has none recorded. 12 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 2013. Four ICPs are still being investigated to determine whether unmetered load is present.
- There were 10 GENE ICPs where the daily unmetered kWh was different to the distributor's field by more than 0.1kWh per day. GENE is working with the Distributors to determine the correct UML.

During the previous audit, I recorded that GENE did not use the unmetered load field on the registry for reconciliation or billing purposes. The Derive system contained unmetered load details that were used for reconciliation purposes. There was an option to create or select a "load characteristic" for each ICP based on known information. If a load characteristic was not selected then a default forward estimate of 25 kWh per day was used for reconciliation. There was no validation between the Derive field and the registry field. This created an issue for any ICPs that switch out, because the winning retailer would rely on the registry field. GENE now uses the daily unmetered load field in Gentrack, which is validated against the registry for submission purposes.

A comparison was made between Derive and the registry for all unmetered load ICPs. There were no differences between Derive and the registry data for any ICPs.

During the previous audit I recorded that 289 of the discrepancies where Derive was lower than the registry were due to the registry being changed to a daily kWh figure of 1 from 0.5 at the time ANZSIC codes were loaded to the registry in August 2013. It is likely that Derive was correct and the registry was incorrect. The problem here is that many ICPs will have switched out in the meantime and the new retailer will be using the incorrect figure of 1 and will be over submitting. I recommended Genesis

identified all ICPs where the registry was changed to the incorrect figure and notify all other retailers of this matter. Genesis did not adopt this recommendation.

GENH

Analysis of the GENH list file only found one issue. There are two ICPs with UML recorded. These were checked on site and it was found submission was not occurring for one of these. The ICPs are 0000275289HB0B4 and 0000565130KEC82. Submission has been occurring correctly for ICP 0000565130KEC82, but not for 0000275289HB0B4. This has now been added to Derive and will be submitted correctly including in revisions. It has been with GENH since 01/12/16 so all consumption will be accounted for.

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 two 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 approx. 75 kWh per month, which is now resolved and will be revised.

Actions taken to resolve the issue	Completion date	Remedial action status
Low level of error and that all instances were already under investigation indicate controls are working. Two individual ICPs identifed at time of audit now cleared.	August 2017	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No further control changes required. Continuation of existing work programme to clear.		

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

Code reference

Clause 17 Schedule 11.1

Code related audit information

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

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

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

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

Audit observation

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 section 3.3 and 3.5.

Audit commentary

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

Gentrack and Orion 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 incorrect statuses for GENE, 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-17 To: 30-Jun-17	Some incorrect status updates. 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 regarding 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 3.4 / 3.5 – duplicate symptom of same cause.	December 2017	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Refer 3.4 / 3.5 – duplicate symptom of same cause.	March 2018	

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 01/03/17 to 30/06/17 was analysed and the findings in relation to the timeliness of updates to registry is recorded in Section 3.3.

Audit commentary

As recorded in Section 2.1, there were 52 ICPs at the status "new connection in progress" where the initial energisation date was populated. At the time of the audit there were still ten GENE ICPs with meters installed where the status had not been changed to Active. The oldest one dated back to 19/12/16. Not only is the status incorrect, but submission is not occurring for these ICPs. There are a further seven ICPs where it's not clear whether they are energised or not. GENE is checking into these.

There were eight GEOL ICPs at "new connection in progress" where the initial energisation date was populated. Two of these have metering recorded on the registry but are still not Active. Five are cancelled new connections, but still need to be investigated.

As recorded in Section 3.3, one ICP should be at status 1,12 not 1,10.

23 GENE ICPs were recorded as "de-energised remotely by AMI" but they did not have AMI metering. It appears 19 of these ICPs had the incorrect status and they have now been updated.

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-16 To: 30-Jun-17	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
Updating status as a result of short turn around credit disconnect / reconnect is an are we accept need system change to bring in line with Code change.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Change has been lodeged with our vendor to determine solution. Implementation expected 2018 after Energy Online migration.	May 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.

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 01/03/17 to 30/06/17 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 435 late nominations for GENE (17%) and 197 for GEOL (15%).

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.

Non-compliance	Description
Audit Ref: 3.11 With: Clause 10.22(1)(a)(i) From: 01-Mar-17 To: 30-Jun-17	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 small proportion of MEP nominations were processed late. Controls are recorded as moderate because there is room for improvements in the timeliness of processing errors. 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
Currently Genesis Energy identifies these errors through the registry validation process. The corrections are forwarded onto the correct business unit for correction.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

For late nominations can occur as meter change has been without current trader knowledge. Incorrect and some late MEP nominations is sourcing from new connections process and will be addressed ion process improvement surrounding 3.4. / 3.5	March 2018	

Audit outcome

Non-compliant

4. PERFORMING CUSTOMER AND EMBEDDED GENERATOR SWITCHING

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

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

Code reference

Clause 2 Schedule 11.3

Code related audit information

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

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

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

Audit observation

The switch gain process was examined to determine when 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 receipt of notification of a switch from the registry, the losing trader must establish a proposed event date. The event date must be no more than 10 business days after the

date of receipt of such notification, and in any 12 month period, at least 50% of the event dates must be no more than five business days after the date of notification. The losing trader must then:

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

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

Audit observation

An event detail report for the audit period was reviewed to identify AN files issued by 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 2017 was analysed to assess compliance with the requirement to set event dates.

Audit commentary

GEOL

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

The event detail report found no event dates for transfer switches for GEOL set greater than 10 days. Only 390 of 2,582 event dates were sent within five business days. This is 15% and is not compliant with the 50% requirement of the Code. GEOL doesn't have an internal event date achievement report in place. This a similar result as was reported in 2016. It was noted then, that the report logic was incorrectly defaulting the event date to six days in the majority of switches. This still appears to be the case.

I checked ten AN files with a response code of AA and I found that nine of them should have had AD for advanced metering. I checked five AN files with a response code of OC and they should all have been AA. Five files with OC were correct because a TR switch was proposed and subsequently changed to MI. Five ICPs with a response code of CO appeared to be correct. No other response codes were used.

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.

GENE provided reporting showing 98.4% of event dates were within five business days. None were over 10.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.2 With: Clause 3 of schedule 11.3 From: 01-Mar-17 To: 30-Jun-17	Incorrect AN response codes for GEOL. Only 15% of event dates within 5 business days. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls for GEOL are weak but they are moderate for GENE so I've recorded the overall control rating as moderate. There is only a minor impact due to incorrect AN code but setting of late transfer dates has a moderate impact on participants and customers because the customer remains with GEOL for an additional period of time. The audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
All Energy Online switching timeframes, proceses and reporting will come in line with Genesis Energy on migration to Gentrack.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
All Energy Online switching timeframes, proceses and reporting will come in line with Genesis Energy on migration to Gentrack.	May 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 in accordance with clause 3(a) of Schedule 11.3 with the required information, no later than five business days after the event date, the losing trader must complete the switch by:

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

Audit observation

An event detail report for the period March to June 2017 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

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

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

I checked 20 CS files where the average daily consumption was zero and 10 where the average daily consumption was more than 400. The field was correct in all cases.

GENE

The switch breach report recorded 25 late CS files. 16 of these were not late (the report is inaccurate) and nine were late, mostly due to CS file errors needing to be corrected.

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

I checked 20 ICPs (TR and MI switches) where the average daily consumption was zero. 16 of these had a final read bill and a scheduled read bill both with the same reading and sometimes on the same date and sometimes on different dates. The average daily consumption is calculated from the last two bills which showed zero consumption. The registry functional specification states the field must be derived from the last read period, not the last billed period. In the scenario above the calculation should go back to the previous reading not the previous bill.

Average Daily Consumption	Numeric 6	M	Value indicates average kWh per day for last read period.

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	9 late CS files for GENE. Incorrect average daily consumption 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 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
In the instance of the average daily consumption, the last read period and the last billed period are the same as the bills are created from reads. The 9 late CS files in context of the number of CS files sent in the period indicate that they are true exceptions.		Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	
n/a		

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 2017 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

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.

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 six 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-16 To: 31-Jul-17	8 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
Response to RR files through Registry may at time be sent late, but these are of no consequence as the change to a read has already been agreed between the traders prior to the initation of the RR file. The RR file process serves only to record in the Registry the transaction of a read change.	n/a	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No chahge required	n/a	

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

Code reference

Clause 6(2) and (3) Schedule 11.3

Code related audit information

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

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

Audit observation

The process for the management of read requests was examined. The event detail report 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

GEOL

The following issues were found when examining the 25 rejected RR files:

- GEOL's readings were correct for 11
- two were rejected in error an then accepted the next day
- 10 were associated with withdrawals
- two were rejected because the customer had not agreed to be re-billed.

The only issue is for the two rejections due to customers not agreeing to be re-billed. The Code requires the reads to be accepted (provided they are accurate) regardless of customer agreement.

GENE

22 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 of the 22 ICPs as HHR therefore the clause does not apply. However I still checked the sample to see if any issues were present. There was one read change rejected, then accepted where it appears the GENE read may have been out by 27 units. All of the other rejections were genuine, GENE reads were accurate and the RR reads were not.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.5 With: Clause 6(2) and (3) Schedule 11.3 From: 11-May-17 To: 19-Jun-17	2 RR files incorrectly rejected. 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 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
Errors in rejection taken up with staff concerned.	August 2017	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	

NO change in process required.	n/a	

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

Code reference

Clause 7 Schedule 11.3

Code related audit information

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

Audit observation

Confirm with 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.

Audit outcome

Not applicable

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

Code reference

Clause 9 Schedule 11.3

Code related audit information

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

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

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

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

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

Audit observation

The switch gain process was examined to determine when 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 receipt of notification of the switch move from the registry, if the losing trader accepts the event date proposed by the gaining trader, the losing trader must complete the switch by providing to the registry:

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

Audit observation

An event detail report for the period March to June 2017 was reviewed to identify AN files issued by Genesis during the audit period. A sample of three 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

GEOL

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

I checked five AN files with a response code of AA and I found that four of them should have had AD for advanced metering. I checked five AN files with a response code of OC and they should all 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. Five ICPs with a response code of CO appeared to be correct. No other response codes were used.

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.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.8 With: Clause 10(1) of schedule 11.3 From: 01-Dec-16 To: 01-Dec-16	Incorrect AN response codes for GEOL. Potential impact: None Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls for GEOL are weak but they are moderate for GENE so I've recorded the overall control rating as moderate. 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
Refer 4.2. Duplicate symptom of single cause.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer 4.2. Duplicate symptom of single cause.		

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

Code reference

Clause 10(2) Schedule 11.3 (2)

Code related audit information

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

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

Audit observation

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

Audit commentary

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.

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.

Audit outcome

Compliant

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

Code reference

Clause 11 Schedule 11.3

Code related audit information

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

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

Audit observation

An event detail report for the period March to June 2017 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 codes 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, and showed seven late CS files for move in switches.

Audit commentary

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.

Ten CS files were examined for accuracy. Three had estimates labelled as actuals and two had an incorrect date of last actual read. The entry date of "the occupier" was used and not the last actual date.

I checked 20 CS files where the average daily consumption was zero and 10 where the average daily consumption was more than 400. The field was correct in all cases.

The switch breach history report showed 242 switch move CS files sent more than three business days after the event date. I checked 26 of the 242 and found that eight were not late (the breach report is

incorrect). 18 were genuinely late. GEOL has been relying on the daily switch breach report which is set to 10 days not three days. 18 of 26 checked were late so it's likely that more than 150 files were late in total.

GENE

There appears to be a problem with the accuracy of switch readings for some ICPs. One example was found (ICP 0006968775RN831) where the average daily consumption in the CS file was -55 kWh. There was a disconnection reading on 22/05/17 of 45043 but a reading of 44928 was provided on the switch date of 25/05/17. It appears the file is picking up the last actual billed reading and not any subsequent reads, even if they are present. GENE is investigating to identify how widespread the issue is. Only one example was found during the audit.

The switch breach history report showed 2,371 switch move CS files sent more than three business days after the event date. I checked 39 of the 2,371 and found that 11 were not late (the breach report is incorrect). 28 were genuinely late. GENE has been relying on the daily switch breach report which is set to 10 days not three days. 28 of 39 checked were late so it's likely that more than 1,700 files were late in total.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 11 of schedule 11.3 From: 01-Aug-16 To: 31-Jul-17	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. 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
In relation to late CS files, due to drafting errors, this was a clause that was impossible for traders to meet if move switch contained a back dated event date greater than three days – a common event. This clause has been corrected within 5/10/17 code amendments CS content is repeat symptom of 4.3.		Unknown

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

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

Code reference

Clause 12 Schedule 11.3

Code related audit information

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

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

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

- *the gaining trader will trade electricity from a meter with a half hour submission type in the registry (clause 12(2A)(b));*
- *the gaining trader no later than five business days after receiving final information from the registry, may provide the losing trader with a switch event meter reading from that meter. The losing trader must use that switch event meter reading (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 2017 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

GEOL

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

No data accuracy issues were identified for MI read change requests or acknowledgements. GEOL genuinely rejected four RR files out of the sample of 25 recorded in Section 4.5.

GENE

The switch breach history report showed 72 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 as recorded in Section 4.5.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.11 With: Clause 12 of schedule 11.3 From: 01-Aug-16 To: 31-Jul-17	42 late RR files for GEOL. 72 late RR files for GENE. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 2
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 4.4 duplicate symptom.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

Code reference

Clause 14 Schedule 11.3

Code related audit information

The gaining trader switch process applies where a trader and a customer or embedded generator enters into an arrangement in which the trader commences trading electricity with the customer or embedded generator to trade electricity through or assume responsibility for:

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

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

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

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

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

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

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

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

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

Audit observation

The 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 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

The registry was informed via the NT file within two business days of all conditions in relation to the agreement being met for a sample of five ICPs. Compliance is confirmed.

Audit outcome

Compliant

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

Code reference

Clause 15 Schedule 11.3

Code related audit information

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

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

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

Audit observation

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 notify registry - gaining trader switch (Clause 16 Schedule 11.3)

Code reference

Clause 16 Schedule 11.3

Code related audit information

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

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

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

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

Audit observation

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

Audit observation

The 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

GEOL

I reviewed 10 withdrawal requests rejected by GEOL, and found one had been rejected in error.

I reviewed 17 withdrawal requests, and checked the reason codes. I found valid codes were used in all cases.

I checked 27 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.

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

GENE

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

I reviewed 40 withdrawal requests, and checked the reason codes. I found valid codes were used in all cases.

I checked 32 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 GENE's NW process.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.15 With: Clause 17 and 18 Schedule 11.3 From: 01-Aug-16 To: 31-Jul-17	One incorrect NW rejection by GEOL. 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 for GEOL are strong because the process is sound and there was only one error. There is a minor impact on other traders. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
User error with the population of 1 wrong NW rejection code, no action required.		Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No change required.		

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 notify the traders responsible for the ICPs across which the unmetered load is shared, of the ICP identifiers of the ICPs.*
>
> *11.14(3) - A trader who receives such a notification from a distributor must notify the distributor if it wishes to add or omit any ICP from the ICPs across which unmetered load is to be shared.*
>
> *11.14(4) - A distributor who receives such a notification of changes from the trader under (3) must notify the registry and each trader responsible for any of the ICPs across which the unmetered load is shared.*
>
> *11.14(5) - If a distributor becomes aware of any change to the capacity of a shared unmetered load ICP or if a shared unmetered load ICP is decommissioned, it must notify all traders affected by that change as soon as practicable after that change or decommissioning.*
>
> *11.14(6) - Each trader who receives such a notification must, as soon as practicable after receiving the notification, adjust the unmetered load information for each ICP in the list for which it is responsible to ensure that the entire shared unmetered load is shared equally across each ICP.*
>
> *11.14(7) - A trader must take responsibility for shared unmetered load assigned to an ICP for which the trader becomes responsible as a result of a switch in accordance with Part 11.*
>
> *11.14(8) - A trader must not relinquish responsibility for shared unmetered load assigned to an ICP if there would then be no ICPs left across which that load could be shared.*
>
> *11.14(9) - A trader can change the status of an ICP across which the unmetered load is shared to inactive status, as referred to in clause 19 of Schedule 11.1. In that case, the trader is not required to notify the distributor of the change. The amount of electricity attributable to that ICP becomes UFE.*

Audit observation

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

GENE has 316 shared unmetered load ICPs. Five have an incorrect daily kWh figure compared to the distributor's figure. In all cases it is where Powerco has updated their kW figure to include ballast wattage and it appears the validation checks have not identified this.

All GEOL shared unmetered load is recorded correctly.

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. 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 the validation checks did not identify these five ICPs. The impact on settlement is only 175 kWh per annum so the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis have reviewed the PowerCo ballast corrections, Genesis Energy have found the updates to be inconsistent and the information populated was not as per recommended format. Genesis Energy will be requesting lamp type/wattage details/ and count of fittings pertaining to each distributor only/Parent ICP	November-December 2017	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Identifed instance already under investigation, so no change required to current controls.	n/a	

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 16 ICPs with consumption over 6,000 kWh per annum and they do not obviously appear to be DUML. They are shown in the table below, highlighted red, with comments from Genesis.

Present in 2016?	ICP	Annual Consumption	Genesis Comments	Veritek Comments
Yes	0007145198RN5F3	10,074	Telstra clear cabinet UML.	Switched to MEEN
Yes	0007146145RN50A	10,074	Telstra clear cabinet UML.	Switched to MEEN
Yes	0001393839UN86B	78,840	Telstra clear cabinet UML.	Switched to MEEN
Yes	0001409085UN545	15,943	Vector communications cabinet.	Switched to MEEN
Yes	0001440705UN838	8,059	Vector substation.	Now below 6,000
Yes	0000011090WE401	18,615	Alandale old people's village unmetered street light.	DUML
Yes	0000011100WE2E2	6,570	Te Kauwhata retirement village unmetered street light.	DUML
Yes	0000011104WE3E8	9,125	Waikato racing club unmetered streetlight.	DUML
Yes	0007106261RN1C3	30,660	Vodafone cabinet.	Switched to MEEN
Yes	0007143499RN973	8,030	Vodafone cabinet.	Switched to MEEN
Yes	1001146090UN1CE	1,653,815	The wattage may be incorrect.	Switched to MEEN
Yes	0000190118TR62B	200,666	Telecommunications cabinet.	Switched to MEEN
Yes	0001261460UN08E	37,960	PCM Cabinet.	Switched to MEEN
Yes	0000558236NRF85	15,330	Sewerage pumps.	
Yes	1001101874UN586	30,660	Traffic lights.	
Yes	0004451002MLF94	17,265	WOODBOURNE LEADLIGHTS, JACKSONS ROAD, WOODBOURNE, BLENHEIM, Airways corporation option to meter.	
Yes	0000455891UN0A2	38,993	Illuminated sign for a commercial business.	
No	0000081066CPA8F	9,746		
No	0000179860TR9B6	16,545		
No	0000536716NRD4D	8,231		
No	0005000772HBA61	7,643		
No	0016096032EL6DD	25,185		

Present in 2016?	ICP	Annual Consumption	Genesis Comments	Veritek Comments
No	0016097099EL1B6	28,653		
No	0080011685PC795	13,118		
No	0088051701WM2E0	8,461		
No	0088055801WMB6F	8,030		
No	0089342001PCB9C	6,570		
No	1000023046BPC38	27,941		
No	1001243372UN366	60,721		

GENE has four ICPs with consumption between 3,000 and 6,000 kWh per annum where the load type is not clear so it's difficult to determine if it's of an approved type or not. The ICPs are shown below with the findings from the audit.

ICP	Annual consumption	Comments
0000100118UNB37	3,548	Could be air force base lighting, need to confirm if they are on the streetlight circuit or not.
0000562357UN4EC	3,986	Appears to be a pump. Suggest updating the registry if it is a pump.
0001108350CAE01	3,066	This is a gas meter unit but the supply is probably only for comms, so it seems too high.
0001452317UN5B0	3,650	This is a billboard at the airport. GENE records state it is vacant but it seems to be there.

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-16 To: 31-Jul-17	Unmetered load over 6,000 kWh per annum and unmetered load between 3,000 and 6,000 not of an approved load type. 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
Genesis Energy are currently investigating all ICP's exceeding regulatory thresholds	February 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Controls exist to identify instances, investigation and correction resource is now allocated under our revenue assurnmace work program.	September 2017	

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 16 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-16 To: 31-Jul-17	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 Duplicate symptom		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer 5.2.		

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. These were all audited by Veritek during the audit period.

Audit commentary

The table below shows that improvements are required for all databases. The next table shows the databases where significant over or under submission has occurred. The processes for preparing submission information are compliant, but some databases are not accurate and some have not been identified.

		Compliance Achieved (Yes/No)						
Database	Last audit 11(5) of schedule 15.3	Deriving submission information 11(1) of schedule 15.3	ICP identifier 11(2)(a) of schedule 15.3	Location of items of load 11(2)(b) of schedule 15.3	Description of load 11(2)(c) of schedule 15.3	Capacity of load 11(2)(d) of schedule 15.3	Tracking of load changes 11(3) of schedule 15.3	Audit trail 11(4) of schedule 15.3
NZTA Wairarapa	06/03/17	No	Yes	Yes	Yes	Yes	No	Yes
NZTA Masterton	06/03/17	No	No	Yes	No	No	No	Yes
Stratford DC	24/02/17	No	Yes	Yes	Yes	No	No	Yes
NZTA East Waikato	15/05/17	No	No	Yes	Yes	No	No	Yes
NZTA West Waikato	15/05/17	No	No	Yes	Yes	No	No	Yes
Waimate DC	24/04/17	No	No	No	Yes	No	No	No
Hauraki DC	15/05/17	No	No	Yes	Yes	No	No	Yes
Whangarei DC	31/05/17	No	Yes	No	Yes	No	No	Yes
Grey DC	02/11/16	No	Yes	Yes	No	No	No	Yes
South Waikato DC	30/03/17	Yes	No	Yes	Yes	Yes	Yes	Yes
NZTA Manawatu	29/03/17	No	No	No	No	No	No	No
Central Hawkes Bay DC	17/01/17	Yes	No	Yes	Yes	No	No	Yes
Christchurch CC Traffic lights	26/05/17	No	No	Yes	Yes	Yes	No	No
Gisborne DC	04/04/17	Yes	Yes	Yes	No	Yes	No	Yes
Hastings DC	01/03/17	No	No	Yes	No	No	No	Yes
Horophenua DC	12/01/17	Yes	Yes	Yes	Yes	No	No	Yes
Napier CC	28/02/17	No	No	Yes	Yes	No	Yes	Yes

NZTA Northland	31/05/17	No	Yes	Yes	Yes	No	Yes	Yes
Wairoa DC	05/04/17	Yes	Yes	Yes	Yes	Yes	No	Yes
Western BOP DC	15/05/17	No	No	Yes	No	No	No	Yes
Kaipara DC	31/05/17	No	Yes	Yes	Yes	No	No	Yes
Sth Taranaki DC	03/02/17	No	Yes	Yes	Yes	Yes	No	Yes
DOC Tekapo	24/04/17	No	No	Yes	No	No	No	No
McKenzie DC	24/04/17	Yes	Yes	No	Yes	Yes	No	Yes
New Plymouth CC	16/01/17	Yes	No	Yes	No	No	No	Yes
Hamilton CC	21/03/17	No	No	Yes	No	No	No	Yes
Waikato DC	22/03/17	No	Yes	Yes	Yes	No	No	Yes
Waipa DC	22/03/17	No	Yes	Yes	No	No	No	Yes
Waimakariri DC	28/04/17	Yes	No	No	Yes	No	No	Yes
Kawarau DC	30/03/17	No	Yes	Yes	No	No	No	Yes
Opotiki DC	30/03/17	No	Yes	Yes	No	No	No	Yes
Whakatane DC	30/03/17	No	No	Yes	Yes	No	No	Yes
BOP NZTA	30/03/17	No	No	No	No	No	No	No
Thames Coromandel DC	15/05/17	No	No	Yes	Yes	Yes	No	Yes
Marlborough	15/05/17	Yes	Yes	Yes	Yes	No	No	Yes

Council	Over/under submission	Annual kWh	Comments
Kaipara	Over	61,345	Northpower data used, suggest using Kaipara DC RAMM.
Whangarei	Over	238,593	Northpower data used, suggest using Whangarei DC RAMM.
NZTA Northland	Over	7,139	Top Energy database inaccuracies.
	Under	96,949	
Hamilton CC	Under	769,889	HCC RAMM database and reporting errors.
Waikato DC	Over	11,572	Odyssey RAMM database errors.
Waipa DC	Over	5,854	Incorrect ballast in Waipa DC RAMM database.
WBOP DC	Under	13,339	Inaccurate database count. Submission matches database.
Kawarau DC	Over	20,000	Registry field used, database not identified.
NZTA BOP	Over	85,000	Registry field used, database not identified.
Opotiki DC	Over	19,800	Registry field used not database.
Whakatane DC	Over	10,500	Registry field used not database.
Hastings DC	Under	17,499	Incorrect ballast wattages.
Napier CC	Under	12,448	Incorrect ballast wattages.
NZTA Masterton	Under	276,000	No reporting or submission for this database.
Grey DC	Over	2,232	Incorrect ballast wattages.

Non-compliance	Description
Audit Ref: 5.4 With: Clause 11 Schedule 15.3 From: 01-Aug-16 To: 31-Jul-17	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 controls are 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 over submission is over 450,000 kWh and the under submission is almost 1,200,000 kWh.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis Energy are working with each individual DUML owner in order to verify all database information and implement the necessary changes to meet the DUML guidelines. All Audits have been completed, outlining the non-compliances across all DUML databases.	May 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Process of auditing DUML databases now strong. Now working through with each customer for resolution of any issues identified	Ongoing	

Audit outcome

Non-compliant

6. GATHERING RAW METER DATA

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

Code reference

Clause 10.13, Clause 10.24 and 15.13

Code related audit information

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

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

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

- *there is 1 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

GENE

GENE's list file was examined. 2,321 active ICPs with distributed generation recorded by the distributor were identified.

Registry metering information is loaded into Gentrack when an ICP switches in. If there are anomalies in any generation fields, such as more than one I flow meter, it is sent to the home generation work queue. I saw evidence of this process in operation. There is no check in place for ICPs with partial generation information, where the distributor generation, installation type or meter register information is inconsistent.

154 NHH ICPs with distributed generation are recorded on the registry with profile RPS. This is recorded as non-compliance in section 2.1. 53 of these were examined and I found that 22 had generation installed and billed in Gentrack, but the registry has only been updated for 14. There are 26 ICPs where GENE has no knowledge of generation being installed. There are three ICPs with liquid fuel and these are being investigated because GENE has no knowledge of what these are.

A sample of five distributed generation ICPs with RPS profile on the registry were checked against the ICP level supporting data for the July 2017 AV080 submission. All five had their generation data correctly 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.

During the previous audit it was recorded that an email is sent to the Distributor to remove the distributed generation information as GENE believe this has been populated incorrectly for some ICPs. I recommended that the customer is contacted in the first instance to confirm if distributed generation is

installed and therefore if injection metering is required rather than assuming the Distributor to be incorrect. GENE adopted this recommendation.

Authority concerns from 2016 audit	Genesis Response	Findings during 2017 audit
The audit identified that Genesis Energy is not submitting volume information for ICPs that do not have an injection channel. We understand that Genesis Energy are informing the distributor to remove the generation noted in the registry. This is based on whether the customer has an agreement with Genesis Energy not the physical existence of generation onsite. If our understanding is correct this may lead to inaccurate settlement in the market and may affect the distributor's ability to manage its network. The previous audit identified 18 ICPs with Genesis Energy that had no injection channel. It is not clear if these that have been resolved. We also understand that Genesis Energy is submitting on the EG1 and PV1 profiles, however the registry does not always contain the correct profile. **Request:** Can you please advise how Genesis Energy is identifying and working with distributors regarding the connection and metering of notified generation. Can you clarify what validation is done to ensure that the profile on the registry matches what is used for submission.	Distributors advise us after connection has been approved and then import/export metering installation is arranged with MEP if required. Validation is done against the metering and the submission profile and Registry updated if needed.	There are still some anomalies existing. I recommend the Authority changes the Code to resolve the large number of process and data related issues associated with distributed generation.

GENE provided a list of ten ICPs where the meter had been bridged to reconnect. This is recorded as non-compliance below. Corrections were not processed for eight of these ICPs, which is recorded as non-compliance in section 8.1.

GEOL

GEOL's list file was examined. 43 active ICPs with distributed generation recorded by the distributor were identified. These were examined and I found 33 were being billed and submitted correctly but the registry was not updated with the correct profile. Nine ICPs do not have generation, and one ICP has generation but is not being billed and submitted correctly.

All GEOL ICPs have RPS profile recorded on the registry. This is recorded as non-compliance in section 2.1. A sample of five distributed generation ICPs with RPS profile on the registry were checked against the ICP level supporting data for the July 2017 AV080 submission. All five had their generation data correctly reported with an EG1 profile.

During the previous audit I recorded that GEOL did not have a process in place to manage the ICPS without an injection channel recorded. I recommended a process is developed to ensure these ICPs are managed. I still think this process needs to be strengthened, so I have left in the recommendation.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clause 10.13 of part 10	Develop a process to manage any GEOL ICPs that have distributed generation indicated but no injection channel recorded.	Genesis Energy will revise the validation process and look to embed robust practices to ensure DG is accurately recorded.	Identified

GEOL provided a list of four ICPs where the meter had been bridged to reconnect. This is recorded as non-compliance below. All were corrected appropriately and flowed through to revision submissions, and are discussed further in section 8.1.

GENH

GENH's list file was examined. 43 active ICPs with distributed generation recorded by the distributor were identified. Eight of these do not have an "I" channel and are not included in the aggregates file. I recommend these are investigated. The ICPs are shown in the table below. Genesis investigated these ICPs and found that ICP 0000130740WEA40 has generation installed but the notes against this ICP from 12/06/15 state: *"ICP recently changed to installation type B on the registry. GENH advise: We are not required to have export metering. System size is small and installed before the requirement of import/export metering. The code has now removed the requirement of import/export metering on systems below 10kw".* I recommend this is investigated further because unless gifting is occurring, the generated volume must be quantified and submitted.

ICP	Date generation field relevant from
0006090168RNC40	01/08/14
0007139792RN05D	01/06/17
0427052565LCF1B	01/05/17
0000130740WEA40	12/05/15
0000601136HBB5D	01/01/17
0006085016RNC43	01/08/14
0006085121RNF75	01/08/14
0007110201RN312	01/08/14

All GENH ICPs have HHR profile recorded on the registry.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 10.13	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.	Have confirmed generation exists and gifting is occurring.	Cleared

I recommend the Authority changes the Code to strengthen the approval requirements for the connection of distributed generation, which will ensure generation is not connected until a trader has agreed to purchase the generated volume and appropriate metering is in place.

Issue	Description	Remedial action
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: 3. Confirmation that a trader has agreed to purchase the generated volume. 4. Confirmation that import/export metering is in place.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: Clause 10.13 From: 01-Aug-16 To: 31-Jul-17	While meters were bridged, energy was not metered and quantified according to the code for ten GENE ICPs, and four GEOL ICPs. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak because correction was not made for 8 of 10 GENE ICPs. Bridging only occurs where a soft reconnection cannot be performed after hours and the customer urgently requires their energy supply for health and safety reasons.

Actions taken to resolve the issue	Completion date	Remedial action status

Genesis Energy will re-introduce reporting to maintain bridged metering, where soft reconnections cannot be performed after hours.	January 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis Energy have identified the requirements and are currently in the process of resetting the back office and critical tasks.	January 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	21-01-18
GENE	RANGIPO	RPO2201GENEGG	GENE	GG	19-03-18
GENE	Tekapo A	TKA0111GENEGG	GENE	GG	20-02-18
GENE	Tekapo B	TKB2201GENEGG	GENE	GG	24-03-18
GENE	TOKAANU	TKU2201GENEGG	GENE	GG	17-03-18
GENE	TUAI	TUI1101GENEGG	GENE	GG	23-03-18

Audit commentary

All points of connection have current certification.

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 Wells, AMS or the customer.

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

GENE

Processes to manage defective metering for GENE are now managed as part of GENE's business as usual processes. The decentralisation of these processes made it more difficult to identify a large sample of defective metering installations during the audit. A sample of four possible defective meters were identified:

- For one ICP, the MEP was advised and subsequently replaced the meter, confirming that it was stopped.
- A customer questioned his invoices in June 2017 because he had noticed his day meter had stopped recording consumption, and followed up again in August 2017. No action had been taken by 23 August 2017. This is recorded as non-compliance below.
- Two ICPs were investigated and found to have genuine zero consumption.

GEOL

I reviewed ten examples of potential defective meters. In all cases a field services job was raised and the MEP advised.

GENH

One example of a defective metering installation was found for GENH. This was examined and all notifications and corrections were made correctly and within the appropriate timeframes.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.4 With: Clause 10.43(2) and (3) From: 30-Jun-17 To: 21-Aug-17	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. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate because additional steps are required in order to identify defective metering. The impact on settlement is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Process was dropped by staff member. Reinforcement of importance has been made.	August 2017	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis Energy is looking at a refinement of the contact center organisations that will group 'critical' processing tasks under a single leadership and control. This is process is one that has been identified in that group.	January 2018	

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

Code reference

Clause 2 Schedule 15.2

Code related audit information

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

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

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

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

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

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

2(6) – The interrogation systems must record:

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

Audit observation

The data collection process was examined. I traced a sample of 25 reads from the source files to GENE's Gentrack and Derive systems, and 15 reads from the source files to GEOL's Orion system.

Wells provides readings to GENE and GEOL for:

- Non AMI meters
- Non communicating AMI meters
- BOPE AMI meters
- FCLM AMI meters
- NPOW AMI meters
- WASN AMI meters.

AMS provides meter readings to GENE and GEOL for:

- ARCS AMI meters
- COUP AMI meters
- AMS AMI meters
- SMCO AMI meters

HHR generation quantities are collected and submitted by Genesis using their Stark data collection system.

AMS collects HHR data for GENH customer metering.

Audit commentary

Fulfilment of the interrogation systems requirements was examined as part of AMS and Wells' audits. Their systems were confirmed to be compliant.

GENE

I traced a sample of ten AMS reads with NHH profile to Gentrack and Derive, and daily volumes for ten ICPs with HHR profile to Gentrack and the Market Submission Database (MSD). All reads were recorded and labelled correctly.

I traced a sample of five Wells reads provided during Wells' agent audit to Gentrack and Derive. All reads were recorded and labelled correctly.

For HHR ICPs where AMI reads cannot be consistently obtained, the ICP submission type is changed to NHH. Where NHH AMI reads cannot be consistently obtained, the ICP is moved to a manually read Wells route.

GEOL

I traced a sample of ten AMS reads to Orion. All reads were recorded and labelled correctly.

I traced a sample of five Wells reads provided during Wells' agent audit to Orion. All reads were recorded and labelled correctly.

Where AMI reads cannot be consistently obtained, the ICP is moved to a manually read Wells route.

GENH

AMS's audit report confirms compliance with all of the points above.

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 by 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 some recent reporting, which showed very small errors present for some data storage devices and these had been appropriately corrected.

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 five meter reads 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

During interrogation, the meter register value is collected and entered into a hand held device. Reads are recorded as actual readings, denoting that they have been collected and validated by the meter reader. Validated meter readings are derived from meter readings.

Wells provides information on meter condition with the daily reads. In the 2016 audit, non-compliance was recorded because Wells did not complete checks for phase failure, or missing or broken seals. Wells' 2017 audit confirmed that these checks are now completed, and condition information is provided to GENE and GEOL. I reviewed examples of missing and broken seals information provided by Wells during the audit. No examples of phase failure were identified, but I confirmed that a phase failure code exists in Wells' system.

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

GENE

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

During Wells' audit, an example of a customer reading was identified. Wells provides customer readings in the notes field, and records a no read. I checked the example in Gentrack, and noted that the normal no read process was followed and a system estimate was automatically generated.

Customer provided readings and photo readings are appropriately recorded with a read type of customer or photo in Gentrack and Derive. I reviewed examples to confirm this.

Meter condition information is received from Wells with their meter reading files. 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. For example, meter changed or removed codes are directed to the metering team's queue. I reviewed the following condition information received from Wells:

- one example of an incorrect meter register
- one example where seals were not present or intact
- two examples of tampering or damage
- one example of an unsafe situation.

All had been appropriately actioned by GENE.

In addition to providing daily condition information, Wells also sometimes emails information to revenue assurance for action.

Meter condition issues can also be identified through GENE's meter read validation process. CSR's can refer cases to revenue assurance for investigation. I observed the revenue assurance processes to track cases and ensure they are investigated and resolved.

GEOL

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

During Wells' audit, an example of a customer reading was identified. Wells provides customer readings in the notes field, and records a no read. I checked the example in Orion, and noted that the normal no read process was followed and a system estimate was automatically generated.

Customer provided readings and photo readings are both recorded with a read type of actual. This is recorded as non-compliance in section 9.1.

Meter condition information is received from Wells with their meter reading files. The meter condition information is bulk loaded as a memo against each affected ICP. The process only allows one memo per ICP to be loaded at a time; where there are multiple notes for an ICP the CSR selects which note will be loaded. These memos will then be assigned to the appropriate work queue for action. I reviewed the following condition information received from Wells:

- two examples where seals were not present or intact
- one example of an incorrect meter register.

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

Two of the three examples reviewed were actioned appropriately. One example of seals not present or intact was not actioned, because there were multiple memos on the same day, and another memo was chosen for upload. This is recorded as non-compliance below. I reviewed several days of meter condition information and found that notes relating to meter location or dogs were usually selected for upload into Orion where multiple notes were present.

In addition to providing daily condition information, Wells also sometimes emails information to the GEOL metering team for action.

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. I observed the revenue assurance processes to track cases and ensure they are investigated and resolved.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.6 With: Clause 3(1), 3(2) and 5 Schedule 15.2 From: 01-Aug-16 To: 31-Jul-17	GEOL does not consistently identify meter condition information that requires action. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are considered moderate because there is room to improve them. 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
Have changed existing manual process so that all customer sourced reads are treated as estimates.	Sep 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Migration to Gentrack will mean existinmg automation that handles web/photo/customer call reads correctly will be adopted	May 2018	

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

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 except in the case of a switch event meter reading which applies to the end of the day prior to the event date for the losing trader and the start of the event date for the gaining trader, as required by this clause.

If a reading is obtained on the switch date it is not always used, and an estimate is calculated up until the end of the previous day. The code amendment that came into effect on October 9th, 2015 states that switch event meter reads apply from the end of the day for the losing trader of the day before the event date and from the beginning of the day for the gaining trader. Therefore, if a read is gained on the event date it could be used, but there does not appear to be a requirement in the Code to use this reading.

When a NHH to HHR meter change occurs, the process used by Genesis (and most other traders) 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 is technically non-compliant, because the NHH meter reading is made effective at the beginning of the day rather than the end of the day, Genesis has not identified a process that would comply with all relevant clauses of the Code. 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). I have raised this as an issue for the Authority to consider.

Issue	Description	Remedial action
Regarding: Clause 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.

GENE

GENE imports the midnight AMI midnight readings, which are applied as at 2400hrs. Manual readings taken by Wells are provided with a read time, which is not entered into Gentrack or Derive.

- I traced a sample of ten AMS reads with NHH profile to Gentrack and Derive. Only one read per day is provided, and all were timestamped 23:59:59, apart from ARC meters, which had timestamps throughout the day.
- I traced a sample of five Wells reads provided during Wells' agent audit to Gentrack and Derive.

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

GEOL

GEOL imports the midnight AMI midnight readings, which are applied as at 2400hrs. Manual readings taken by Wells are provided with a read time, which is not entered into Gentrack or Derive.

- I traced a sample of ten AMS reads to Orion. Only one read per day is provided, and all were timestamped 23:59:59.
- I traced a sample of five Wells reads provided during Wells' agent audit to Orion.

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

Audit outcome

Compliant

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

Code reference

Clause 7(1) and (2) Schedule 15.2

Code related audit information

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

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

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

Audit observation

The process to manage missed reads was examined.

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". The access processes for GENE and GEOL begin after the first "missed" read; however, this still makes compliance difficult if the period of supply is short.

GENE

GENE runs the access report on a monthly basis. The outbound communication process includes letters, phone calls and texts to customers to obtain meter readings and resolve on-going access issues. The current process has resulted in a reduction of unread ICPs in general.

A report of ICPs not read during the period of supply was provided for ICPs with an end date between 22 June 2016 and 2 August 2017. 178 ICPs were not read during the period of supply. Of these, 113 were supplied for less than 90 days. Whilst compliance is achieved for most ICPs, those held for a short period of time will not always have read attempts or multiple communications.

GEOL

A report of ICPs not read during the period of supply was provided for ICPs with an end date between 30 June 2017 and 8 August 2017. 191 ICPs were not read during the period of supply. Of these, 32 were supplied for less than 90 days.

As with GENE, compliance with this clause will be difficult for those sites with a short period of supply. For those that had been with GEOL for a longer period best endeavours will have been satisfied.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.8 With: Clause 7(1) and (2) Schedule 15.2 From: 01-Aug-16 To: 31-Jul-17	Validated meter reading not obtained during the period of supply for all 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	Strong meter reading controls are in place but with short switching durations it can be difficult to obtain manual meter reads when ICPs have a short period of supply. The impact on billing and settlement is minor because of the short period. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Short ownership periods have also been a challenge for the industry. From Genesis Energy's perspective AMI metering with advent of daily reads has improved the situation. Within six months prior to the audit period, our switch process was changed to use AMI reads on every AMI switch will be greatly improve situation. Energy Online will also get the benefit of this change in the migration to Gentrack. Short ownership on legacy metering remains an issue which can only be reduced by continued replacement with AMI.	September 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
n/a		

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 June 2017 were provided.

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

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
June 2017	265	93	543	98.51%
May 2017	265	90	552	98.54%
April 2017	265	90	552	98.54%
Mar 2017	265	89	537	98.59%

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

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

The total quantity of unread ICPs is down to just over 500 due to a strong set of processes, including letters, automated outbound calling, text messages, email and outbound calling by CSR. The process commences at 60 days.

I checked a sample of 10 ICPs not read in the 12-month period and found two pre-pay ICPs which are not included on the list for outbound communications. I also found one account managed ICP, which was also not included on the list for outbound communication.

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
June 2017	181	52	135	99.79%
May 2017	181	53	146	99.78%
April 2017	181	53	146	99.78%
Mar 2017	178	48	135	99.79%

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

I reviewed ten ICPs not read In all cases, best endeavours had been used to obtain readings.

in the previous 12 months determine whether exceptional circumstances exist, and if GEOL had used their best endeavours to obtain readings.

In the previous audit, an issue with the report content was identified. It appears this issue is still present. Some unmetered ICPs and ICPs with reads during the period appear on the report. The unmetered ICPs still appear in the report. This is raised as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.9 With: Clauses 8(1), 8(2), of schedule 15.2 From: 01-Aug-16 To: 31-Jul-17	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. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because there is room to improve them to include all ICPs and to ensure reporting is correct. There will be 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
Energy online will remove the reporting of UML ICP's from its criteria. Genesis to investigate the 2 x prepay and 1 x account managed site.	September 2017 December 2017	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
EOL will be changing its reporting due to billing platform upgrade. This will enable more efficient reporting from data sources. Our current Liberty pre pay system is curently being retired as a payment method for Genesis.	May 2018 December 2017	

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

Code reference

Clause 10 Schedule 15.2

Code related audit information

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

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

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

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

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

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

6.11. 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 4 months, for which consumption information is required to be reported into the reconciliation process. A validated meter reading is obtained at least once every four months for 90% of the non half hour meters.

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

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

Audit observation

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

Ten ICPs not 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

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
June 2017	275	25	2114	95.20%
May 2017	272	33	2402	94.70%
April 2017	272	33	2402	94.70%
Mar 2017	272	7	2209	95.20%

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

I reviewed the process to determine whether exceptional circumstances exist, and if GENE had used their best endeavours to obtain readings.

In all cases the findings showed compliance with the Code.

GEOL

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
June 2017	192	2	645	99.17%
May 2017	189	5	709	99.09%
April 2017	189	5	709	99.09%
Mar 2017	188	8	651	99.16%

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

I reviewed the process to determine whether exceptional circumstances exist, and if GEOL had used their best endeavours to obtain readings.

In all cases the findings showed compliance with the Code.

As discussed in section 6.9, the report logic needs review to ensure it is correct.

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 for GENE. The data collection requirements were reviewed as part of their audit.

GENH and generation data is sourced from the services access interface as required by the Code.

Audit commentary

This clause requires that data from all half hour metering must be obtained by electronic interrogation of meters or data loggers. The clause also allows manual data collection to occur. These processes were reviewed as part of AMS' audit.

GENE

I traced a sample of a day of volumes for ten ICPs with HHR profile to Gentrack and MSD. All reads were recorded and labelled correctly.

GENH

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

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

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

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

AMS provide all HHR data for GENE and GENH, and are responsible for trading period duration. Trading period duration was reviewed as part of their audit.

A sample of ten read files each for GENE and one for generation were checked using the typical case sample methodology to confirm trading period duration.

Audit commentary

GENE

Review of ten AMS read files confirmed that trading period duration is 30 minutes.

GENH

The AMS audit report confirms compliance.

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.

I traced a sample of 25 reads from the source files to GENE's Gentrack and Derive systems, and 15 reads from the source files to GEOL's Orion system, to confirm that they matched the source data provided.

Audit trails were reviewed in section 2.4.

Audit commentary

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

GENE

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

A sample of 25 reads were traced from the source files to Gentrack and Derive, confirming that the reads had not been modified.

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.

GEOL

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

A sample of 15 reads were traced from the source files to Orion, confirming that the reads had not been modified.

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.

GENH

AMS demonstrated compliance with this clause.

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

GENE collects unmetered data in relation to streetlights, and this information is appropriately archived.

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

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

Code reference

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

Code related audit information

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

Audit observation

AMS provides AMI and HHR readings. Clock synchronisation processes for MEPs were reviewed as part of their MEP audits. MEPs and their 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

Clock synchronisation processes for MEPs were reviewed as part of their MEP audits.

GENE

AMS provides all AMI meter readings. 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.

I viewed two examples of these emails, and noted that no action was required.

GEOL

AMS provides all AMI meter readings. 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.

I viewed two examples of these emails, and noted that no action was required.

GENH

AMS demonstrated compliance with this clause.

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.

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 a recent report for Huntly G1, which showed one 12 second difference that was corrected.

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 provided by AMS for surrounding dates, which are available in 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 in Gentrack or reconciliation in Derive. A system estimate will be created for billing, and the forward estimate process will apply for reconciliation.

A sample of three corrections for revenue assurance cases were reviewed. All three related to theft of energy and were processed correctly, with an estimated closing read entered, and readings during the affected period invalidated. The corrections flowed through to Derive.

Late last year, investigation and correction was moved from revenue assurance to business units, with the intention of fully integrating revenue assurance processes into business as usual activities. I reviewed a small sample of ICPs requiring correction and found:

- A stopped meter reported by a customer which had not been investigated or corrected. This is discussed further and raised as non-compliance in section 6.4.
- No examples of multiplier corrections.
- Ten examples of bridged meters. One was investigated and found not to be bridged, and another appears not to have been bridged. Corrections were not processed for the other eight, which were bridged for between one and 45 days. This is recorded as non-compliance below.
- Seven examples of consumption while disconnected. Three were processed correctly in Gentrack and Derive by updating the status, allowing the consumption to flow through to revision submissions. One correction had not been processed in Gentrack or Derive, and another three had been processed incorrectly, or not processed in both systems. This is recorded as non-compliance below. The corrections were updated during the audit and will now flow through to revision submissions.

The 2016 audit found that some corrections had been made in Gentrack, but had not flowed through to Derive and the reconciliation submissions. Three recommendations for improvement were made, and these were followed up during the 2017 audit.

2016 Recommendation	2017 Findings
Implement exception reporting to identify where a reading in Gentrack has not been used for submission in Derive	For the sample of corrections reviewed, I found that all reads which had been corrected in Gentrack had flowed through to Derive as expected. It is not practical to compare the readings used by Gentrack and Derive. As well as the Gentrack readings, end of month readings for AMI ICPs are imported from the AMS data store. These additional readings improve submission accuracy, but make it more difficult to reconcile between Gentrack and Derive. I observed the process to ensure that reads updated in Gentrack flow through to Derive. If a read changes in Gentrack, it is imported overnight into Derive. If there is an existing read that day in Derive and the value is different, Derive will invalidate the old reading and validate the new reading. Only validated readings are used to calculate reconciliation consumption. Consumption validation processes in Derive identify consumption anomalies, including where a replacement read is lower than a previous reading or consumption is high relative to the previous month. As part of the read exception process, the reconciliation team can compare data in Gentrack to Derive and MSD. Readings can be put on hold while they are investigated. I walked through these validation processes to confirm they were operating as expected.
Validate Gentrack meters vs Derive meters.	I did not identify any examples of meters recorded in Gentrack but not Derive, or vice versa during the audit. Meter information is maintained in Gentrack, and updated in Derive through an MPC file which is imported overnight. This file includes any changes to metering information including end dates, dials, multipliers and register content. Exception reporting is in place in Derive for changes to metering information, including checks that end dated meters have a status consistent with the meter being removed, or a new meter has been installed. If the overnight read import process attempts to import a read where there is no open meter in Derive an exception is generated, and is investigated by the reconciliation team. I reviewed examples of these import exceptions to confirm the process was working as expected.
Peer review all corrections and adjustments.	Corrections and adjustments are not independently peer reviewed. Reliance is placed on the validation processes.

The Authority raised some concerns about the treatment of bridged meters in the 2016 audit; this was followed up in the 2017 audit.

Authority concerns from 2016 audit	Genesis Response	Findings during 2017 audit
Genesis Energy has not quantified consumption for 62 bridged meters. Additionally the previous audit noted bridged meters where revision had not occurred. It is	Yes, volumes have been corrected. Yes, the process has been revised where the team working the bypassed/tampered meters confirms volume and the submission volumes are revised	Processes to identify and correct bridged meters were reviewed during the audit. Bridged meters are identified through the meter read validation processes, zero consumption check processes and

unclear if the issues from the previous audit have been resolved. Genesis Energy is not submitting volumes on ICPs which are 'inactive' in the registry but have consumption recorded. The previous audit noted several ICPs that were "inactive" but had consumption, this audit has not discussed if these past issues have been resolved. Request: Can you please confirm that: Genesis Energy has corrected submissions for the bridged meters identified in the previous audit and for the 62 bridged meters note in this audit. Genesis is actively working to identify and correct submission information for any bridged meters identified in the future. Where there is consumption for ICPs that are 'inactive' on the registry, the status is corrected and submission information flows through to reconciliation.	accordingly. Yes, status is changed on discovery and volumes are revised on calculation of correct usage.	from information provided by contractors. I reviewed ten examples of bridged meters and found that they had not all been processed correctly or completely. This is recorded as non-compliance.

GEOL

Where errors are detected during the validation process, GENE 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.

I reviewed ten examples of stopped or defective meters. In all cases a field services job had been raised and the issue was resolved. Supporting information and calculations were available. In some cases, corrections were not processed accurately:

- For eight of the corrections, a closing actual read type was entered, when the read was estimated. This is recorded as non-compliance in section 9.1.
- One correction was not processed, because GEOL agreed not to bill the customer for the correction. This prevented the reconciliation submissions from being corrected, and is recorded as non-compliance below.

Six examples of multiplier discrepancies between Orion and the registry were reviewed, to determine whether corrections were completed. Multiplier is a static, meter level field in Orion. The multiplier is not applied as part of Orion's normalised consumption calculations; the consumption is multiplied by the multiplier as part of the aggregation process which occurs outside Orion and is discussed further in section 12.2. I reviewed the six discrepancies and found:

- Two were being investigated with the MEP, and it appeared Orion was correct.

- The existing Orion multiplier was correct for two ICPs, and the MEP had updated the registry.
- One multiplier correction had been processed correctly in Orion, and the revised multiplier was applied for all revision submissions.
- One multiplier correction had not been processed correctly in Orion; the multiplier of 60 was only applied to one meter register. The revised multiplier was applied for all revision submissions for one register, while the other register still had a multiplier of 1. This is recorded as non-compliance below.

Four examples of bridged meters were reviewed. These are corrected by estimating consumption for the bridged period, and adding it to the closing meter reading, then making the reads during the bridged period misreads so that they are ignored by the historic estimate process. All were corrected appropriately and flowed through to revision submissions. Closing rather than estimated closing reads were entered for two ICPs, this is recorded as non-compliance in section 9.1.

Six ICPs with consumption while disconnected were reviewed. None had been corrected, all still showed a disconnected status and no reconciliation consumption had been generated. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 8.1 With: 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 From: 01-Aug-16 To: 31-Jul-17	Some NHH corrections for GEOL and GENE were not processed completely and accurately. Some meters have not had consumption during a bypassed period reported. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak because there are some areas where they do not exist or do not eliminate errors. A small number of corrections were identified and checked, and a relatively large proportion of them had either not been processed, or not been processed completely and accurately. There is a moderate impact on settlement; therefore the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status

Ref 6.1 Genesis Energy have identified the requirements and are currently in the process of resetting the back office and critical tasks.	December 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
The reimplementation of vacant/faulty metering will enable Genesis Energy to comply with the requirements of 8.1	February 2018	

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

Code reference

Clause 19(2) Schedule 15.2

Code related audit information

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

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

Audit observation

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

The AMS report records compliance.

I checked two generation corrections for the period when meters were changed.

Audit commentary

GENE

Where errors are detected during validation of half-hour metering information, including where data is missing and check metering data is not available, a system routine is applied to calculate an estimate.

Where AMS had provided estimated data and this is left active, the system routine will estimate data up to those values. If AMS has not provided estimates, or the estimates are made inactive, the estimation routine will estimate based on previous consumption history for the meter and the profile shape applied for the ICP. If insufficient history is available 24 kWh per register per day is estimated.

I reviewed ten corrections to HHR data, all examples provided were where HHR data was missing and was estimated.

- Five were based on the default estimate of 24 kWh per register per day with a flat profile, with estimates varying from 24 kWh per day for an ICP with one meter, to 72 kWh per day for an ICP with three meter registers.
- One ICP was based on the default estimate of 24 kWh per register per day, with profile that varied by day of the week, similar to the profile where data was available.

- Four were estimated based on previous consumption history for a similar period. For one of these, AMS had provided some estimated readings, which were left active and taken into consideration by the estimation routine.

These estimates flowed through to reconciliation submissions. I verified that the audit trails showed that the volumes were estimated.

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 Genesis, 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 one correction for Tokanuu where one trading period needed to be permanently estimated. AN appropriate audit trail is kept and the trading period is recorded as an estimate, as shown below.

31/05/17	16:30:00	7,227.40	2,609.16	E

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.

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

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

Correct identification of estimated reads, and review of the estimation process was completed in sections 8.1, 8.2 and 9.4.

I traced a sample of 25 reads from the source files to GENE's Gentrack and Derive systems, and 15 reads from the source files to GEOL's Orion system.

Audit commentary

GENE

All reads checked were correctly identified. Photo and customer readings are not recorded as actual readings.

GEOL

Actual readings traced from AMS and Wells' files were correctly identified, as were no reads and system estimates.

Customer and photo readings are recorded as actual readings. The Authority clarified on 04/05/17 that photo reads cannot be used as validated reads for the following reasons:

1. The consumer has the opportunity and financial incentive to tamper with the photo used to derive meter data, and this will not necessarily be detectable by the reconciliation participant.
2. The raw meter data is not obtained from the services access interface (which is the meter, not the photo of the meter).
3. The reconciliation participant will be unable to perform all of the checks provided by clause 5 of Schedule 15.2.

This is recorded as non-compliance below.

When processing corrections, some estimated closing readings were recorded as closing actual, when they should have been closing estimate. This is discussed further in section 8.1, and recorded as non-compliance below.

GENH

AMS's 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) and 5 of Schedule 15.2 From: 01-Aug-16 To: 31-Jul-17	GEOL records customer and photo readings as actual. Some estimated closing readings were recorded as actual closing readings. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Customer and photo reads usually only occur where it is not possible for the meter reader to gain access. Estimated closing readings are treated as permanent estimates.

Actions taken to resolve the issue	Completion date	Remedial action status
Have initiated the request to have the web reads changed to populate as an estimation/no read and training for CEC for incoming calls to denote all customer reads as estimations/no read	November 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Migrating GEOL to Gentrack, EOL will adopt Gentrack's current processes for meter readings derivation, meeting compliance.	May 2018	

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

Code reference

Clause 3(4) Schedule 15.2

Code related audit information

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

3(4)(a) - validated meter readings

3(4)(b) - estimated readings

3(4)(c) - permanent estimates.

Audit observation

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 3(5) Schedule 15.2

Code related audit information

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

Audit observation

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

I reviewed the method to receive meter reading information, and traced a sample of reads from the source files to GENE and GEOL's systems as discussed in section 6.5.

AMS's audit report confirms compliance for GENH.

Generation data was checked during the audit.

Audit commentary

The MEP or agent retains raw, unrounded data.

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 round only occurs at the time of submission to 2 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, and a sample of ten estimates were reviewed.

AMS completes HHR estimation on behalf of GENH, their estimation processes were reviewed as part of their agent audit.

Estimation has not occurred for generation data.

Audit commentary

GENE

GENE creates most of their own HHR estimates. In some cases, AMS provides estimated volumes, but they are not always provided for every half hour. AMS' process to generate HHR estimates was reviewed as part of their audit and found to be compliant.

A GENE system routine is applied to calculate estimates. Where AMS had provided estimated data and this is left active, the system routine will estimate data up to those values. If AMS has not provided estimates, or the estimates are made inactive, the overnight estimation routine will estimate based on previous consumption history 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 HHR estimates.

- Five were based on the default estimate of 24 kWh per register per day with a flat profile, with estimates varying from 24 kWh per day for an ICP with one meter, to 72 kWh per day for an ICP with three meter registers.
- One ICP was based on the default estimate of 24 kWh per register per day, with a profile that varied by day of the week, similar to the profile where data was available.
- Four were estimated based on previous consumption history for a similar period. For one of these, AMS had provided some estimated readings, which were left active and taken into consideration by the estimation routine.

In some cases, especially where data is missing for many intervals, GENE will change the ICP's submission type to NHH.

GENH

When AMS, on behalf of Genesis, 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.

For GENE exceptions process documentation was reviewed. For GEOL I walked through and observed the exceptions process.

Audit commentary

For GENE and GEOL data validation for NHH metering information occurs at multiple levels.

Firstly for meters read by Wells at the handheld level a localised validation occurs to ensure the reading is within expected high/low parameters. Readings which fail this validation are required to be re-entered, and if the two readings are the same the second reading will be accepted. If the second reading is different, (potentially indicating the first reading was incorrect) then the second reading is required to be re-entered. Compliance is confirmed for all agents regarding data validation.

If data becomes corrupt, including dates and times, GENE's Gentrack and GEOL's Orion will not allow the file to be uploaded and an investigation will then occur. The meter numbers are then "matched" between the files from meter reading agents and Gentrack and Orion, and any discrepancies are investigated.

GENE

For GENE, the next level of validation occurs when readings enter Gentrack. This validation checks number of meters, number of registers, date and time validity and whether the reading is within predetermined parameters. At this point a reading can be "invalidated" but is not overwritten. Reasons are noted for all invalidated reads. A second validation occurs when invoices are produced; at this point changes can only occur if the incorrect invoice is reversed, the original information is retained for audit trail purposes. The billing validation includes:

- no open meter register
- more than one read for a meter
- 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
- tariff rate missing.

The final validation occurs in the Derive system where data at ICP and NSP level is compared with predetermined profiles and exceptions are investigated. GENE's MSD and Derive reconciliation systems have a full audit trail.

ICPs where consumption is zero for four consecutive months are now monitored by the billing team, they were previously monitored by revenue assurance. Letters are sent to the customer advising that their meter appears not to be recording energy, and asking to arrange a time for meter replacement. This process appears to be bedding in, and it was difficult to find examples of stopped meter corrections that had occurred recently.

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.

Disconnected ICPs with consumption are monitored by the billing team. If an ICP with consumption while disconnected is identified, the billing team update the status to active, and pass the ICP to the credit team to be disconnected again. Corrections for consumption while disconnected were reviewed in section 8.1, and I found that some corrections were not processed completely or accurately.

Bridged meters should be identified through information provided by contractors, the low consumption validations and zero consumption checks. Corrections for bridged meters were reviewed in section 8.1, and I found that some corrections were not processed completely or accurately.

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

GEOL

Orion validates reads and creates read import exceptions as the reads are imported. The read import exceptions include:

- no open meter registe.
- 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.

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 include:

- 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.

GEOL is not actively monitoring ICPs with zero consumption. A query has been developed to identify ICPs with zero consumption, but due to resourcing constraints it is not actively reviewed.

A vacant disconnection process is followed for vacant ICPs. I saw evidence that vacant ICPs with consumption are being 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.

Disconnected ICPs with consumption are not actively being monitored. Six ICPs with consumption while disconnected were reviewed. None had been corrected, all still showed a disconnected status and no reconciliation consumption had been generated. This is recorded as non-compliance in section 8.1.

Bridged meters should be identified through information provided by contractors and the low consumption validation checks. Corrections for bridged meters were reviewed in section 8.1, all flowed to reconciliation submissions correctly, but an incorrect read type was applied in some cases.

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

Recommendation	Description	Audited party comment	Remedial action
Clause 16 Schedule 15.2	Monitor zero consumption meters to identify possible stopped meters and theft. Monitor disconnected ICPs with consumption to identify unauthorized reconnections.	Genesis Energy 's Reconciliation team have recently looked into inactive consuming reporting. Utilising the monthly read data it can be determined if the site has been re-occupied.	Identified

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 0 values

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

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

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

Audit observation

Review of meter event logs and validation checks. 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 their 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.

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(4)(f) of schedule 15.2 From: 01-Aug-16 To: 31-Jul-17	AMI events are not all being reviewed and actioned for GENE and GEOL. 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 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 AMS. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The outcomes that would be achieved through investigation of event logs on all mass market HHR meters is currently being realised by other validations and reporting. Event logs are then requested for specific ICPs to verify cause.		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will investigate again the possibility of using event log reporting to seem if benefit can be gained. This is potentially an area that needs to be addressed through the code to indicate different levels required for C&I verses mass market HHR meters.	June 2018	

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

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

Audit observation

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

Audit commentary

Trading notifications are 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.

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

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

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

Audit outcome

Compliant

11.2. Calculation of ICP days (Clause 15.6)

Code reference

Clause 15.6

Code related audit information

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

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

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

Audit observation

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

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

Audit commentary

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

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

GENE

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, the Code does not specifically cater for these situations, so I believe compliance is achieved.

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-16	0.00%	0.00%	0.00%	0.00%	0.00%
Feb-16	0.00%	0.00%	0.00%	0.00%	0.00%
Mar-16	-0.01%	0.00%	0.00%	0.01%	0.00%
Apr-16	-0.02%	0.00%	0.00%	0.00%	0.00%
May-16	0.00%	0.00%	0.00%	0.00%	-
Jun-16	0.00%	0.00%	0.00%	0.00%	-
Jul-16	0.00%	0.00%	0.01%	0.00%	-
Aug-16	0.01%	-0.01%	0.00%	0.00%	-
Sep-16	0.00%	0.01%	0.00%	0.00%	-
Oct-16	0.01%	0.00%	0.00%	0.00%	-
Nov-16	0.01%	0.00%	0.00%	0.00%	-
Dec-16	0.00%	0.01%	0.00%	-	-
Jan-17	0.00%	0.00%	0.00%	-	-
Feb-17	0.01%	0.00%	0.00%	-	-
Mar-17	0.00%	0.01%	0.00%	-	-
Apr-17	0.02%	0.00%	-	-	-
May-17	0.02%	0.00%	-	-	-
Jun-17	0.00%	-	-	-	-

I reviewed seven NSP level ICP days differences. Three related to backdated switches, and four related to ICPs recorded with the incorrect NSP, either due to an NSP change not being processed in time for submission or in one case an NSP being manually entered incorrectly.

GEOL

The following table shows the ICP days difference between GEOL files and the RM return file (GR100) for all available revisions for 18 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-16	0.01%	0.01%	0.01%	0.00%	0.00%
Feb-16	0.01%	0.00%	0.00%	0.00%	0.01%
Mar-16	0.00%	0.00%	0.01%	0.00%	0.00%
Apr-16	0.00%	0.00%	0.00%	0.00%	0.00%
May-16	0.01%	0.02%	0.00%	0.00%	-
Jun-16	0.00%	0.00%	0.01%	-0.01%	-
Jul-16	0.01%	0.00%	0.00%	0.00%	-
Aug-16	0.04%	0.02%	0.00%	0.00%	-
Sep-16	0.00%	-0.01%	0.00%	0.00%	-
Oct-16	0.05%	0.21%	-0.01%	0.00%	-
Nov-16	0.00%	0.00%	0.00%	0.00%	-
Dec-16	-0.04%	0.00%	0.00%	-	-
Jan-17	0.02%	0.00%	0.01%	-	-
Feb-17	0.00%	0.01%	0.00%	-	-
Mar-17	0.00%	0.01%	0.00%	-	-
Apr-17	0.00%	0.00%	-	-	-
May-17	0.01%	0.00%	-	-	-
Jun-17	0.00%	-	-	-	-

I reviewed nine NSP level ICP days differences. Seven related to backdated switch withdrawals and two related to an ICP which had switched in with an incorrect submission flag.

I found that ICP days submissions are not being zeroed. ICP 0006656960RNE4E was GEOL's only ICP connected to APS0011. A switch withdrawal was completed in June 2016 after the April and May 2016 initial and one month ICP days had been submitted. After the withdrawal, APS0011 was excluded from revision submissions as there were no ICP days to report. Because no replacement data was submitted, the original ICP days remained in the reconciliation manager's database. This is recorded as non-compliance below.

GENH

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-16	0.00%	0.01%	0.00%	0.00%	-
Feb-16	-0.09%	0.01%	0.00%	0.00%	-
Mar-16	0.08%	0.06%	0.00%	0.00%	-
Apr-16	-0.09%	0.00%	0.00%	0.00%	-
May-16	0.08%	0.00%	-0.01%	-0.01%	-
Jun-16	-0.03%	-0.01%	-0.01%	-0.01%	-
Jul-16	0.02%	0.00%	0.00%	0.00%	-
Aug-16	-0.08%	-0.02%	0.00%	0.00%	-
Sep-16	0.19%	-0.01%	-0.01%	-0.01%	-0.01%
Oct-16	-0.01%	-0.01%	-0.01%	-0.01%	-
Nov-16	0.03%	0.00%	0.00%	0.00%	-
Dec-16	0.26%	0.00%	0.00%	0.00%	-
Jan-17	0.16%	0.00%	0.00%	-	-
Feb-17	0.05%	0.00%	0.00%	-	-
Mar-17	0.22%	0.01%	0.00%	-	-
Apr-17	0.20%	0.06%	-0.01%	-	-
May-17	0.04%	0.05%	-	-	-

Month	Ri	R1	R3	R7	R14
Jun-17	-0.01%	0.20%	-	-	-
Jul-17	0.07%	-	-	-	-

I reviewed some discrepancies in the ICP COMP report and found one specific issue related to decommissioned ICPs. When a HHR ICP is decommissioned the registry records the ICP as decommissioned all of that day. If there is consumption for part of the day the ICP is decommissioned this consumption must be submitted and if submission occurs this also leads to one ICP day, which the registry is not expecting because the ICP is decommissioned all day. I've raised this as an issue for the Authority to consider.

Issue	Description	Remedial action
Clause 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.	I recommend a Code change so that inactive status changes are made effective at the end of the day not the beginning of the day.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 11.2 With: Clause 15.6 From: 30-Apr-16 To: 31-May-16	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. Potential impact: None Actual impact: None Audit history: None 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. GEOL over reported 32 days for one ICP at APS0111. A backdated switch withdrawal occurred and it was the only ICP on the NSP. If other ICPs are still supplied at an NSP, ICP days will be reported for subsequent revisions correctly. The impact is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Process changed to ensure compliance as above.	October 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

This has been corrected, process has been created to cater for these AV110 scenarios. ICPDAYs will now contain zero out rows as required.	October 2017	

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

Code reference

Clause 15.7

Code related audit information

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

> *15.7(a) - submission information for the immediately preceding consumption period, by 1600 hours on the 4th business day of each reconciliation period*
>
> *15.7(b) - revised submission information provided in accordance with clause 15.4(2), by 1600 hours on the 13th business day of each reconciliation period.*

Audit observation

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

GR130 reports for January 2015 to March 2017 were reviewed to confirm whether the relationship between billed and submitted data appears reasonable.

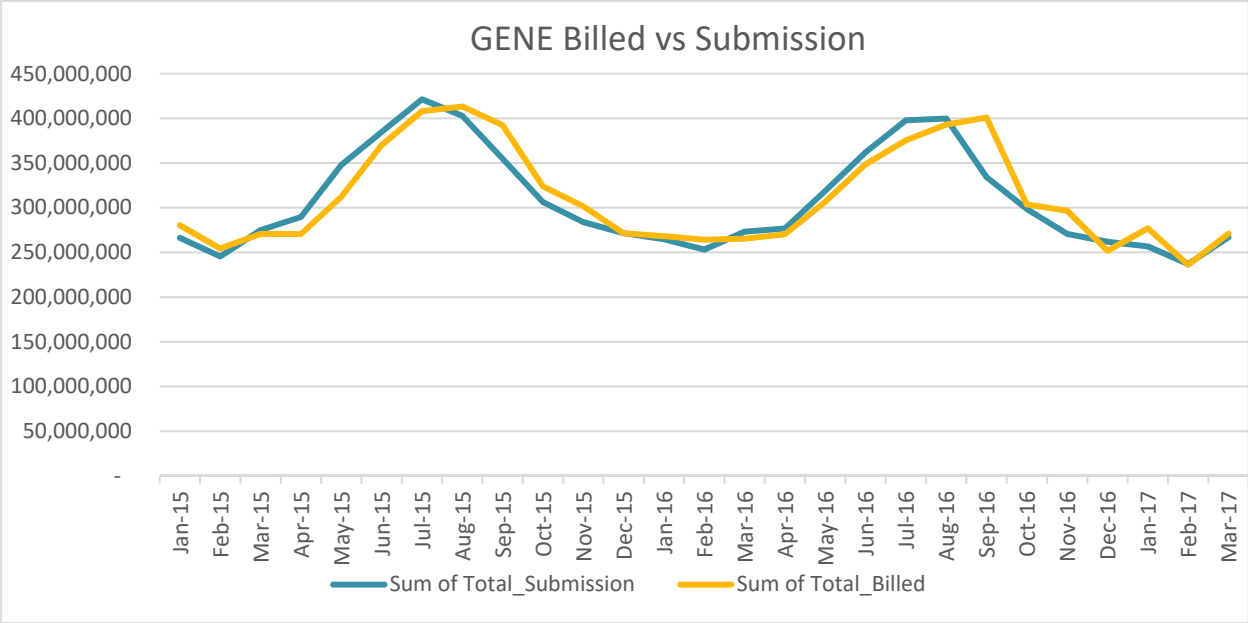
Audit commentary

The process for 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 27 month period, and the results are shown and discussed in the charts below.

GENE Comparison between submitted and billed kWh

For GENE the total difference is 0.74% for the two years ended March 2017 (billed higher than submission).



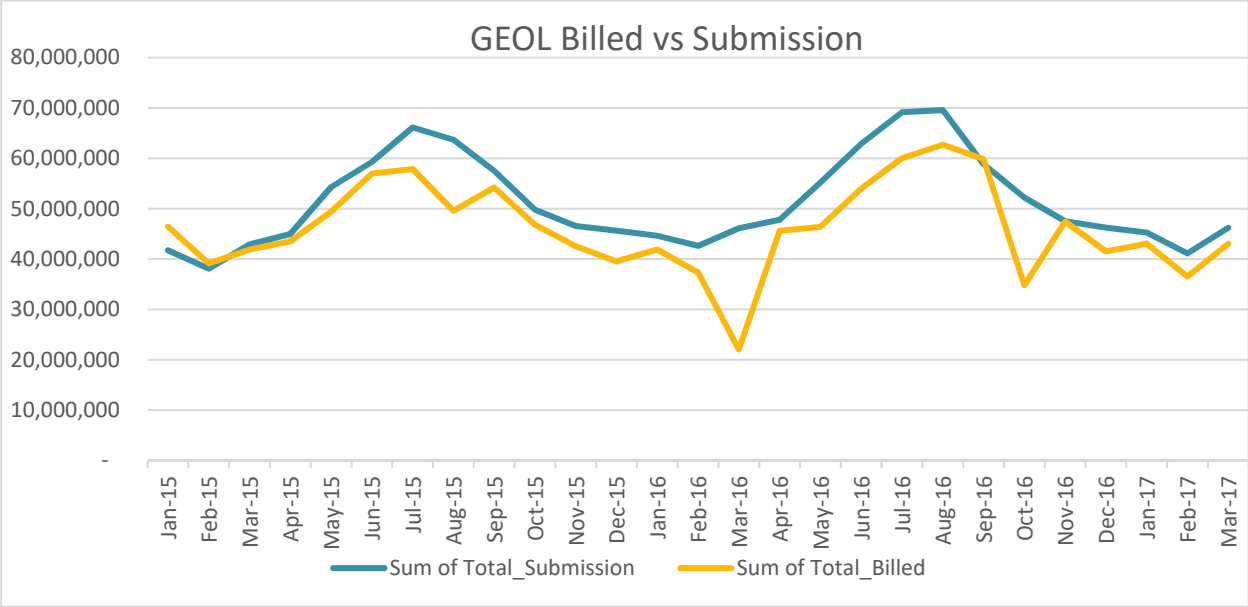
Differences between billed and submitted data were reviewed. Some duplicate information was historically included in the AV120 reports, but this is now removed prior to submission.

- Where streetlights are submitted as NHH, but billed as HHR, billed data was being duplicated.
- For some FCLM meters with aggregation registers, where register 1 typically records the combined consumption for registers 2 and 3, billed consumption was over reported.

I reviewed the process to remove this duplicate consumption from submissions using a SQL database, and noted that a full audit trail was available including the reason for the adjustment.

GEOL Comparison between submitted and billed kWh

For GEOL, the total difference is -11.77% for the two years ended March 2017 (submission lower than billed).



In March 2016 and October 2016, the extraction of billed data from Orion was incomplete and did not include all billed data. The October 2016 billed consumption will be washed up, but the 14 month revision has already passed for March 2016.

Prior to October 2016, Orion was including some non-billable consumption, such as

- home generation, which GEOL does not bill for
- non billable registers, including maximum demand and some FCLM meters with aggregation registers, where register 1 typically records the combined consumption for registers 2 and 3.

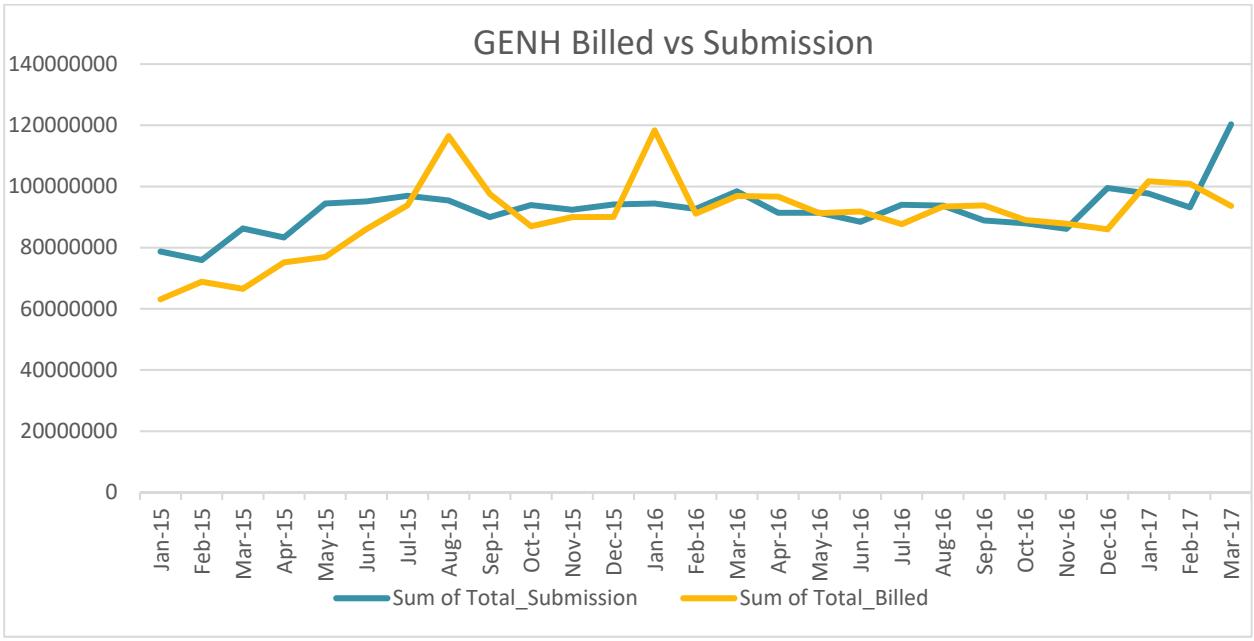
GENE now validates the billed consumption using a script to exclude any billed consumption where the flow direction ≠2, and the settlement indicator for the meter register ≠ Y. The NSP recorded is also checked against the registry.

I reviewed the process to remove this duplicate consumption from submissions using a SQL database, and noted that a full audit trail was available including the reason for the adjustment.

Review of the as billed data has shown that the differences between billed and submitted have decreased since the revised process was implemented.

GENH Comparison between submitted and billed kWh

For GENH the total difference is -0.92% for the two years ended March 2017 (billed lower than submission).



The 2016 audit identified some issues with double counting of DUML information, due to dummy ICPs entered for customer billing. These dummy ICPs are now manually removed from submissions but revisions were not conducted for the two "peaks" shown in the graph above.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 11.3 With: Clause 15.7 From: 01-Jun-15 To: 31-Jul-17	Electricity supplied information incorrect for GEOL. Electricity supplied revisions not conducted for historic errors in 2015 and 2016 Potential impact: None Actual impact: None Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because improvements are required to ensure ongoing accuracy and to ensure revisions are conducted. There is no impact on settlement because these files are used as a comparison only. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Investigation of Energy Online AV120 errors found process is correct, staf did not follow process for month errors occurred in. Revisions adjusted where required.	August 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
n/a		

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 that the process for the calculation and aggregation of HHR data is correct, by matching HHR aggregates information with the HHR volumes data for nine months for GENH. I also matched a sample of five volumes from the HHR aggregated submission to the volumes provided by AMS during the AMS audit.

The GR090 ICP Missing files were examined for July 2016 to June 2017 for GENH. An extreme case sample of the ten ICPs with the largest number of months containing missing data were reviewed.

Audit commentary

GENE

Exemption No.256 is in place, and expires on 1 October, 2017. This exempts Genesis from submitting half hour aggregate data for category 1 or 2 ICPs.

GENH

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

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

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

This differs from the Reconciliation Manager Functional Specification. In Section 3 of the Reconciliation Manager Functional Specification, HHR Aggregates information is described as: *"…HHR submission information that is aggregated per ICP for the whole month (not half-hourly)",* which suggests an intention that this information should be sourced from submission information not electricity supplied information, which is covered by clause 15.7.

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

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

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

The GR090 ICP Missing files were examined for all revisions for July 2016 to June 2017. 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 switches and withdrawals. No issues with missing data were identified.

I confirmed that the process for the calculation and aggregation of HHR data is correct, by matching HHR aggregates information to the volumes provided by AMS during the AMS audit.

Non-compliance	Description
Audit Ref: 11.4 With: Clause 15.8 From: 01-Aug-16 To: 31-Jul-17	HHR aggregates file does not contain electricity supplied information. Potential impact: None Actual impact: None Audit history: Once previously Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	This is an error in the code; GENH is providing submission information as expected.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis Energy does not plan to correct. Should be submission information aggregated, not electricity supplied.	October 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Audit outcome

Non-compliant

12. SUBMISSION COMPUTATION

12.1. Daylight saving adjustment (Clause 15.36)

Code reference

Clause 15.36

Code related audit information

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

Audit observation

Data processes for AMS were reviewed as part of their agent audit.

A diverse characteristics sample of ten daylight savings adjustments were reviewed for GENE, covering changes to and from daylight savings.

GENH was 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.

AMS use the "trading period run on" technique for daylight saving adjustment. This was confirmed by checking a sample of ten daylight savings adjustments, including adjustments for the start and end of daylight saving. The correct number of trading periods were recorded.

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

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

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

A sample of NHH ICPs were checked to make sure they are handled correctly, including unmetered load, distributed generation, and vacant ICPs with consumption. Further information on calculation of historic estimate is recorded in section 12.11.

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

Audit commentary

GENE prepares NHH submissions for GENE and GEOL using reconciliation consumption generated in Derive for GENE, and Orion for GEOL.

NHH metered and unmetered volumes are reviewed in MSD prior to submission. I walked through the process to review submission information in MSD using the Consumption Validation Manager Tool (MVMT). The tool allows comparison 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
- monthly consumption >10,000 kWh
- negative consumption.

If an exception is passed, the information will be used for submission, if an exception is failed, the data will be excluded. 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. If corrections are required, the data is updated in Derive (and Gentrack if necessary) for GENE, or Orion for GEOL, then the reports are re-run and re-checked.

GENE HHR data is reviewed in MSD prior to submission. The same validation checks apply as for NHH. Any corrections required are processed directly within MSD, using the CVMT tool. Then the data is refreshed and re-checked.

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, the Code does not specifically cater for these situations, so I believe compliance is achieved. An issue is raised in Section 6.7 and 11.2 in relation to these matters.

GENE

GENE submits HHR volume information, NHH volume information (forward and historic estimates) and unmetered volume information.

I reviewed submissions for a sample of ten ICPs with injection/export registers, and confirmed that generation consumption is correctly submitted. A sample of five ICPs with vacant consumption were checked, and I confirmed that vacant consumption is reported.

Raw volumes provided for ten ICPs were traced from the read files through to the HHR aggregates submissions. All data matched as expected.

Non-compliance is raised in section 8.1, because some corrections did not flow through to reconciliation submissions.

No breaches had been recorded for late provision of submission information.

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.

I reviewed submissions for a sample of five ICPs with injection/export registers, and confirmed that generation consumption is correctly submitted. A sample of five ICPs with vacant consumption were checked, and I confirmed that vacant consumption is reported. NHH consumption while disconnected will only be reported if the status is updated to active, non-compliance is raised in section 8.1 for not consistently processing corrections for consumption while disconnected.

Non-compliance is raised in

- section 8.11, because some corrections did not flow through to reconciliation submissions
- section 12.11, because there were some inaccuracies in the GEOL historic estimate calculations.

During the 2016 audit, non-compliance was raised because double submission occurred where an ICP had a change of aggregation factors. Orion would submit the entire monthly consumption on one NSP, and part of the month's consumption on the other. GENE now compares the ICP data against a date ranged registry list for the last 15 months and applies the aggregation factors from the registry list. If there is a change of NSP, the Orion normalised consumption is apportioned pro rata based on the number of days. The new process is a significant improvement from the double submission, but does not meet the historic estimate calculation requirements. This is recorded as non-compliance in section 12.11.

No breaches had been recorded for late provision of submission information.

GENH

No breaches had been recorded for late provision of submission information.

Generation

No breaches had been recorded for late provision of submission information.

Audit outcome

Compliant

12.3. Allocation of submission information (Clause 15.5)

Code reference

Clause 15.5

Code related audit information

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

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

Audit observation

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

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

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

AMS's report confirms compliance with this clause.

Audit commentary

GENE

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

GR170 and AV080 files for September 2016 to November 2016 were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required. Derive NHH submission files are submitted via 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. I walked through this process. The ICP is set up so that it is excluded from the ICP days calculations.

The HHR processes are automated to ensure that volumes are submitted for every NSP, regardless of whether any consumption has been recorded.

GEOL

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

GR170 and AV080 files for September 2015 to November 2015 were compared, and found to contain the same NSPs, confirming that zeroing is occurring as required. Orion NHH submission files are submitted via 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. The missing rows are added with zero volume as part of the GEOL AV080 aggregation script. I walked through this process.

GENH

Raw volumes provided for five ICPs were traced from the read files through to the HHR aggregates submissions. All data matched as expected.

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

Genesis is not a grid owner.

Audit commentary

Genesis is not a grid owner.

Audit outcome

Not applicable

12.5. Provision of NSP submission information (Clause 15.10)

Code reference

Clause 15.10

Code related audit information

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

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

Audit observation

A registry list was reviewed to confirm that GENE, GEOL and GENH do not own any local or embedded networks.

Audit commentary

GENE, GEOL and GENH are not required to provide NSP submission information.

Audit outcome

Not applicable

12.6. Grid connected generation (Clause 15.11)

Code reference

Clause 15.11

Code related audit information

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

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

Audit observation

Genesis is a generator and I examined the process for preparation of submission information.

Audit commentary

Genesis is a generator and volumes files were provided on time and accurately during the audit period.

Audit outcome

Compliant

12.7. Accuracy of submission information (Clause 15.12)

Code reference

Clause 15.12

Code related audit information

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

Audit observation

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

Corrections were reviewed in section 8.1 and 8.2.

Audit commentary

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

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

Audit outcome

Compliant

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

Code reference

Clause 4 Schedule 15.2

Code related audit information

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

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

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

Audit observation

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

Audit commentary

GENE

Review of the 14 month revisions for January to April 2016 showed that not all estimated meter readings had been replaced with validated meter readings. Estimated meter readings are not being made permanent at the 14-month point as required by the Authority.

I examined five NSPs at ICP level where forward estimate still existed at 14 months. Forward estimate remained for the following reasons:

- During the 2016 audit, it was identified that final estimate reads when an ICP switched out were not being transferred to Derive, and a forward estimate was being created. This issue has been resolved and final estimate reads are now transferred to, and used by, Derive. I confirmed this by checking some estimated closing reads in Derive, and recalculating the historic estimate for one ICP with an estimated closing read. Most of the forward estimate related to meters closed on estimated readings prior to this change taking place.
- ICPs genuinely had not received an actual read during the 14 months.

GEOL

Review of the 14 month revisions for January to April 2016 showed that not all estimated meter readings had been replaced with validated meter readings. Estimated meter readings are not being made permanent at the 14-month point as required by the Authority.

I examined ten NSPs at ICP level where forward estimate still existed at 14 months. Forward estimate remained for the following reasons:

- For five NSPs, ICPs genuinely had not received an actual read during the 14 months.
- For the other five NSPs, there were ICPs which had a meter change during the submission month. The Orion reconciliation process had created forward estimate on both the replaced and new meters, when only historic estimate was expected. 136 of ICPs at the NSPs reviewed were affected. This is raised as non-compliance in section 12.12.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 4 of Schedule 15.2 From: 01-Aug-16 To: 31-Jul-17	Some estimates not replaced at R14 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	Controls are rated as moderate because meter reading processes have ensured only a small quantity of consumption is based on estimates. Improvements have been made to ensure that estimated closing reads are treated as permanent estimates for GENE. The impact on settlement is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
This is the ongoing discussion we have where we do not have reads that meet the requirements of permanent estimates, hence we report correctly to the industry.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Continued rollout of AMI metering will lesson instances of failing.	Ongoing	

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

Code reference

Clause 2 Schedule 15.3

Code related audit information

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

- *half hour volume information for each ICP notified in accordance with clause 11.7(2) for which there is a category 3 or higher metering installation (clause 2(1)(a))*
- *for each ICP about which information is provided under clause 11.7(2) for which there is a category 1 or category 2 metering installation (clause 2(1)(b)):*
  - *a) half hour volume information for the ICP; or*
  - *b) non half hour volumes information calculated under clauses 4 to 6 (as applicable).*
  - *c) unmetered load quantities for each ICP that has unmetered load associated with it derived from the quantity recorded in the registry against the relevant ICP and the number of days in the period, the distributed unmetered load database, or other sources of relevant information (clause 2(1)(c))*

- *to create non half hour submission information a reconciliation participant must only use information that is dependent on a control device if (clause 2(2)):*
    - *a) the certification of the control device is recorded on the registry; or*
    - *b) the metering installation in which the control device is location has interim certification.*
- *to create submission information for a point of connection the reconciliation participant must apply to the raw meter data (clause 2(3):*
    - *a) for each ICP, the compensation factor that is recorded in the registry (clause 2(3)(a))*
    - *b) for each NSP the compensation factor that is recorded in the metering installations most recent certification report (clause 2(3)(b)).*

Audit observation

Aggregation and content of reconciliation submissions was reviewed.

Audit commentary

GENE

ICP 1000025992BPCB9 has a category 3 HHR meter, but is recorded with submission type NHH. The MEP is BOPE, and GENE does not receive HHR data. This is raised as non-compliance below.

Unmetered ICP 1000002777BP0EA has not had submission information provided since 23/11/13.

GENE does not use any profiles that require certification of control devices as discussed in section 6.3.

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

Aggregation of the AV080 and AV110 submissions are covered in sections 13.2 and 11.2 respectively.

GEOL

GEOL does not supply any category 3 or higher ICPs.

All GEOL unmetered load was submitted.

GEOL does not use any profiles that require certification of control devices as discussed in section 6.3.

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

Aggregation of the AV080 and AV110 submissions are covered in sections 13.2 and 11.2 respectively.

GENH

Analysis of the GENH list file found all profile and submission flags to be set correctly.

HHR unmetered ICP 0000275289HB0B4 did not have unmetered load submitted. This has now been added to Derive and will be submitted correctly including in revisions. It has been with GENH since 01/12/16 so all consumption will be accounted for.

Aggregation of AV090 and AV140 submissions is discussed in section 11.4.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.8 With: Clause 2 Schedule 15.3 From: 23-Nov-13 To: 31-Jul-17	Unmetered load not submitted for 2 ICPs. One HHR Category 3 ICP with NHH submission. 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 three issues were not 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
Genesis Energy has implemented vast changes to cater for UML. Instances highlighted identifed and corrected prior to audit. 1000025992BPCB9 CAT3 metered site has been corrected as GENH C&I HHR site. NHH submission on ICP 0007715373MLFE5 is for private streetlighting attached to C&I site and is correctly reconciled through NHH.	May 2017	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis Energy will take on board these comments and look at how 2 GENE ICP's from 3800 were missed. Genesis Energy will tighten up the controls in its exception reporting.	November 2017	

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

GEOL

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

Audit observation

To assist with determining compliance of the Historical Estimate (HE) processes, 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, except for NSP changes for GEOL.

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.	Fail	No example provided
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.	Pass	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:

- 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 raised 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. GENE receives the meter level normalised consumption data from Orion and matches it to a date ranged registry list to confirm the correct NSP. Where an NSP change has occurred during the month, data is apportioned between the two NSPs based on the number of days. The apportionment should be based on the SASV that applied on each day. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.11 With: Clause 4 and 5 of Schedule 15.3 From: 01-Aug-16 To: 31-Jul-17	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: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls have room for improvement and are rated as moderate. Total consumption is calculated correctly, only the historic estimate component is incorrect. For NSP changes the total for the ICP is calculated correctly, but the proportion reported against each NSP during the month the change occurred will be incorrect. NSP changes normally occur within a balancing area and the impact is expected to be low-none.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis Energy has investigated and found that the code within the Energy Online billing system requires an base code change to meet this requirement. As total volume is accurate there is no justifiaction for spend on fix currently.	May 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis Energy are replacing Energy Online billing platform which will correct the HE output.	May 2018	

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. Documentation on the Derive estimation process was reviewed.

Forward estimates were checked for accuracy by analysing the GR170 file for variances between revisions over the audit period.

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 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
Sept 2015	0	2	3	5	198
Oct 2015	2	11	16	14	199
Nov 2015	1	3	3	3	200
Feb 2016	0	1	1	2	198
Mar 2016	0	1	0	-	200
Apr 2016	0	2	3	-	200

Month	Revision 1	Revision 3	Revision 7	Revision 14	Total Balancing Areas
May 2016	3	7	6	-	200
Sep 2016	0	4	-	-	201
Oct 2016	0	10	-	-	208
Nov 2016	0	2	-	-	211

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Sept 2015	3.61%	7.05%	6.79%	6.79%
Oct 2015	4.37%	11.69%	12.34%	12.35%
Nov 2015	3.20%	7.46%	7.52%	7.64%
Feb 2016	0.63%	0.74%	-0.20%	0.25%
Mar 2016	0.04%	-0.41%	-0.75%	-
Apr 2016	-1.30%	-3.46%	-3.05%	-
May 2016	-0.94%	-8.85%	-7.95%	-
Sep 2016	5.44%	8.14%	-	-
Oct 2016	4.78%	12.13%	-	-
Nov 2016	2.72%	7.46%	-	-

I reviewed four balancing areas where the variation between revisions was more than ± 15% and ± 100,000 kWh - OAM0331WATAG (November 2016), SWCKMPOWG (November 2016), BA4WESTPOCOG (October 2016) and CENTRALLINEG (October 2016). In all cases the difference seemed to be because the FE was either too high or too low in the initial allocation. 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
Sept 2015	0	1	1	1	85
Oct 2015	1	2	2	1	86
Nov 2015	0	1	1	1	86
Feb 2016	0	1	1	1	89
Mar 2016	0	0	0	-	90
Apr 2016	0	0	0	-	92
May 2016	0	2	2	-	92
Sep 2016	0	1	-	-	93
Oct 2016	0	0	-	-	98
Nov 2016	0	0	-	-	99

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

Month	Revision 1	Revision 3	Revision 7	Revision 14
Sept 2015	4.52%	6.68%	6.53%	6.11%
Oct 2015	5.74%	10.75%	10.74%	10.41%
Nov 2015	1.93%	4.80%	4.77%	4.53%
Feb 2016	0.39%	1.09%	0.50%	0.73%
Mar 2016	0.15%	1.10%	0.93%	-
Apr 2016	-1.77%	-3.20%	-3.27%	-
May 2016	-3.54%	-6.18%	-5.91%	-

Sep 2016	5.28%	6.47%	-	-
Oct 2016	4.55%	9.09%	-	-
Nov 2016	2.69%	4.56%	-	-

I reviewed three balancing areas where the variation between revisions was more than ± 15% and ± 100,000 kWh - BALANC1TASMG (May 2016), STK0331NELSG (May 2016), RNBAL01ORONG (February 2016 and November 2015). Two main causes of the differences between revisions were identified:

- The FE was either too high or too low in the initial allocation.
- The ICP changed between NSPs, or another aggregation factor changed during the month, resulting in double reporting of some consumption, particularly for early revisions. GEOL now compares the ICP data against a date ranged registry list for the last 15 months and applies the aggregation factors from the registry list. If there is a change of NSP, the Orion normalised consumption is apportioned pro rata based on the number of days. This issue was present during the 2016 audit, and is recorded as non-compliance in section 12.11.

An issue with incorrect creation of forward estimate was identified. 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 raised as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 12.12 With: Clause 6 of Schedule 15.3 From: 01-Aug-16 To: 31-Jul-17	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. 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 system has some design flaws leading to a control rating of moderate. 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 we are submitting majority of ICPs on the effected NSPs as HHR via AMI metering, the percentage at aggregate over states the impact on the NSP. We have investigated the FE routines and believe that the estimation routines based on previous read data, where previous read data is obtained and are robust but the nature of the ICPs mean consumption is erratic and reading more difficult. As rollout of AMI continues and completes, issues such as this (seemingly worsening controls, but really a mathematical factor) will come to light.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
n/a		

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 from 01/04/17-30/06/17 for GENE, GEOL and GENH were examined to identify all ICPs which had a profile change during the report period.

A typical sample of five ICPs with profile changes (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 and any changes normally involve a meter change so that reading is used.

A sample of five profile changes were checked, and confirmed that an actual or permanent estimate existed on the day of the profile change.

GEOL

One profile change was identified on the event detail report. It was a correction for ICP 0110010336ELBB8 which was a new connection incorrectly set up with a HHR profile on the registry effective 07/04/17. GEOL corrected the profile to RPS effective 11/04/17, but no read was recorded that day. This is recorded as non-compliance below. During the audit, the event was reversed and correctly updated from 07/04/17, the date the ICP became active.

GENH

No profile changes were identified on the event detail report for GENH.

Non-compliance	Description		
Audit Ref: 12.13 With: Clause 7 Schedule 15.3 From: 11-Apr-17 To: 11-Apr-17	One GEOL ICP did not have an actual read on the day of a profile change. Potential impact: None Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	**Rationale for audit risk rating**		
Low	I believe this was an isolated human error; GEOL only uses the RPS profile. Incorrect submission did not occur therefore the controls are rated as strong and the audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
Genesis energy have corrected the event due to user error and was a 1 off instance.		October 2017	Cleared
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Genesis Energy does not believe any further action is required.		October 2017	

Audit outcome

Non-compliant

13. SUBMISSION FORMAT AND TIMING

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

Code reference

Clauses 8 & 9 of Schedule 15.2

Code related audit information

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

Audit observation

I reviewed meter reading frequency report for March to June 2017 for GENE and GEOL, to ensure that they met the report requirements.

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

Audit commentary

GENE provides these reports to the Market Administrator for GENE and GEOL.

A sample of four reports each were reviewed for GENE and GEOL and I confirmed that they met the report requirements.

I reviewed the report submissions for May to October 2016, and confirmed that the reports were submitted on time for GENE and GEOL.

Audit outcome

Compliant

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

Code reference

Clause 8 Schedule 15.3

Code related audit information

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

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

Audit observation

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

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

Zeroing in the AV080 submission is discussed in section 12.2 and was found to be compliant. Non-compliance is recorded in relation to AV110 zeroing in section 11.2.

Audit commentary

GENE and GEOL

The AV080 aggregation process was examined by checking five NSPs with a small number of ICPs each for GENE NHH and GEOL. The aggregation was confirmed to be correct.

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, GEOL and GENH. The aggregation was confirmed to be correct.

In the previous audit, non-compliance for provision of incorrect submission information was recorded because

- some ICPs were reported against the incorrect NSP
- AV080 zeroing had not occurred for October and November 2015; and
- under submission occurred in the initial allocation for some ICPs where new profiles were present.

Processes have improved since the last audit for both GENE and GEOL. Submission data is matched against date ranged registry list for the previous 15 months prior to submission to ensure that the correct aggregation factors are applied. Zeroing processes are in place for the AV080 for both GENE and GEOL, and are discussed further in section 12.3.

During the GR100 ICP days report review; I saw some evidence of ICPs being reported against the incorrect NSP for GENE:

- Two ICPs changed from NSP TAK0331 to DGS0011 effective from 01/01/2017, but the change was not processed in GENE's systems until after the March 2017 3 month revision.
- ICP 0000013319HB917 was manually loaded with the wrong NSP on 21/02/2017, TWQ0011 instead of TWS0011. This was corrected in GENE's systems after the February 2017 3-month revision.

Before the implementation of the check against the registry NSP for GEOL, some ICPs were reported with incorrect NSPs.

- Some ICPs were incorrectly reported against HOR0661 for periods from at least November 2015 until February 2016. Corrections were made in time for the November 2015 14 month revision.
- ICP 0006656960RNE4E was GEOL's only ICP connected to APS0011. A switch withdrawal was completed in June 2016 after the April and May 2016 initial and one month ICP days had been submitted. After the withdrawal, APS0011 was excluded from revision submissions as there were no ICP days to report. Because no replacement data was submitted, the original ICP days remained in the reconciliation manager's database.

I did not see any evidence of new profiles being applied for GENE. GEOL only uses the RPS profile.

GENH

Submission related information is recorded as compliant in the AMS report. A list file (with history) is provided twice per month to AMS to ensure the correct factors are used.

Generation

Generation submission is recorded as compliant.

Non-compliance	Description
Audit Ref: 13.2 With: Clause 8 of Schedule 15.3 From: 01-Aug-16 To: 31-Jul-17	Some consumption and ICP days was reported against an incorrect NSP. Potential impact: None Actual impact: None Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls can be improved and are rated as moderate. All incorrect submissions identified have washed out, apart from 32 ICP days at APS0111, which have no market impact. Processes to identify submission errors have improved. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis Energy have taken steps to ensure that when staff are away on leave that sufficient cover is on hand and knowledge of tasks required to at the required levels. Occurance of such like 32 days on APS0111, will be addressed by zeroing out ICPs identifed above.	May 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis Energy believe its current processes are robust.	May 2017	

Audit outcome

Non-compliant

13.3. Reporting resolution (Clause 9 Schedule 15.3)

Code reference

Clause 9 Schedule 15.3

Code related audit information

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

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

Audit observation

I reviewed the rounding of data on the AV090, AV140 and AV080 reports as part of the aggregation checks.

Audit commentary

GENE

Review of three AV080 NHH volumes reports confirmed that submission data is rounded to two decimal places.

Review of three 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 three AV-140 HHR aggregates reports confirmed that submission data is rounded to two decimal places.

Review of three 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

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

Code reference

Clause 10 Schedule 15.3

Code related audit information

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

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

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

Audit observation

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

I reviewed eight months of AV080 reports to determine whether historic estimate requirements were met.

Audit commentary

The quantity of historical estimates is contained in the submission file, and is not a separate report. The three, seven and 14 month revision files were examined for a selection of eight months and the table below shows 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
Apr 2016	-	-	125	288
May 2016	-	-	101	288
Jun 2016	-	-	129	280
Sep 2016	286	-	-	296
Oct 2016	294	-	-	298
Nov 2016	294	290	-	298
Dec 2016	-	286	-	300
Jan 2017	-	277	-	294

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
Apr 2016			99.0%
May 2016	-	-	95.6%
Jun 2016	-	-	99.3%
Sep 2016	96.9%	-	-
Oct 2016	96.5%	-	-
Nov 2016	95.8%	98.9%	-
Dec 2016	-	98.6%	-
Jan 2017	-	98.1%	-

GEOL

Proportion of HE

Month	Revision 3 80% Met	Revision 7 90% Met	Revision 14 100% Met	Total
Apr 2016	-	-	102	182
May 2016	-	-	98	180
Jun 2016	-	-	94	181
Sep 2016	177	-	-	179
Oct 2016	179	-	-	184
Nov 2016	179	184	-	185
Dec 2016	-	180	-	184
Jan 2017	-	182	-	185

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
Apr 2016	-	-	99.7%
May 2016	-	-	99.6%
Jun 2016	-	-	99.6%
Sep 2016	98.6%	-	-
Oct 2016	98.5%	-	-
Nov 2016	98.0%	99.5%	-
Dec 2016	-	99.5%	-

Jan 2017	-	99.5%	-

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 13.4 With: Clause 10 of Schedule 15.3 From: 01-Aug-16 To: 31-Jul-17	Historic estimate thresholds were not met for some revisions 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 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
Refer 12.8 duplicate symptom of same cause.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Refer 12.8 duplicate symptom of same cause.		

CONCLUSION

The audit found 39 non-compliance issues, five recommendations are raised and four issues are recorded.

Improvements are evident in the following areas:

- most of the unmetered load submission issues are now resolved
- all DUML databases have had at least one audit
- validation reporting has been strengthened
- meter reading attainment rates remain at a high level.

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

- distributed unmetered load submissions are not correct for several databases
- revised submission information is not always provided to the Reconciliation Manager when historic issues are discovered
- some late and incorrect status updates and MEP nominations
- more than 50% of event dates later than five business days for GEOL
- a large number of late CS files.

PARTICIPANT RESPONSE