

Electricity Industry Participation Code Audit Report

For

Transpower New Zealand Limited



Metering Equipment Provider

Prepared by Steve Woods – Veritek Limited

Date of Audit: 13/02/17

Date Audit Report Complete: 10/03/17

Executive Summary

Transpower New Zealand Limited (TPNZ) is a Metering Equipment Provider (MEP) and they have requested that this audit is conducted early, in conjunction with their other 2017 audits.

This audit was conducted in accordance with the Guideline for Metering Equipment Provider Audits V1.3, which was published by the Electricity Authority.

The audit found compliance with all relevant clauses of the Code. Strong controls are in place to ensure compliance issues do not arise.

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 in Section 12 provides some guidance on this matter and recommends an audit frequency of 36 months.

Table of Non Compliance

Subject	Section	Clause	Non compliance	Indicative Impact	Audit History	Procedures	Remedial Action
			Nil				

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Remedial Action
			Nil	

Persons Involved in This Audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

TPNZ personnel assisting in this audit were.

Name	Title
Ian Martin	Metering Services Manager

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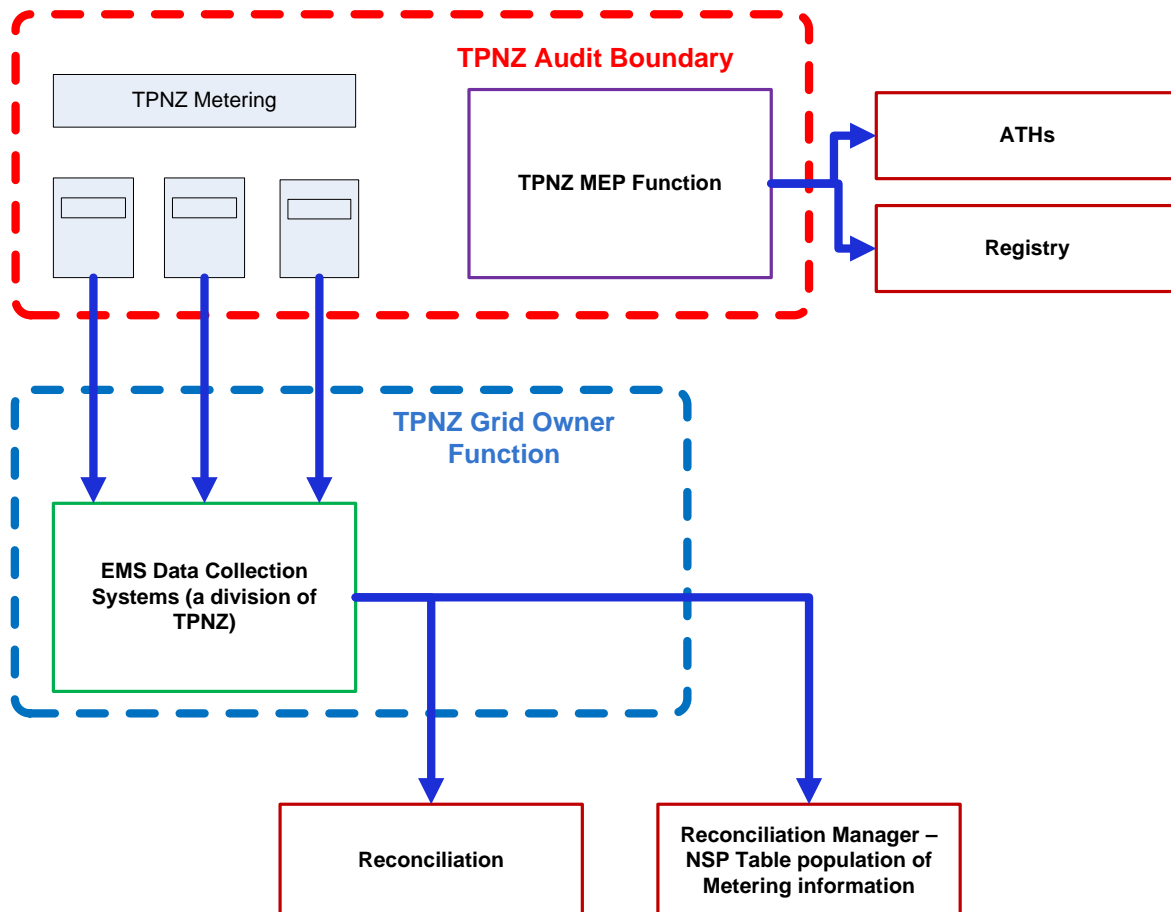
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1. Scope of Audit

TPNZ is a Metering Equipment Provider (MEP) and they have requested that this audit is conducted early, in conjunction with their other 2017 audits.

This audit was conducted in accordance with the Guideline for Metering Equipment Provider Audits V1.3, which was published by the Electricity Authority.

The boundaries of this audit are shown below for greater clarity.



The TPNZ MEP function is solely for grid metering at GXPs and GIPs. EMS is a division of TPNZ and collects data for the grid owner function, not the MEP function. The responsibility to provide metering information to the Reconciliation Manager is with TPNZ as a grid owner not as an MEP. Three metering installations are at ICPs and this data was checked as part of the audit.

2. Preliminary Provisions

2.1 Summary of Previous Audit

The previous audit report recorded compliance with all relevant clauses.

Table of Non Compliance

Subject	Section	Clause	Non compliance	Status
			Nil	

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status
			Nil	

2.2 Responsibility for Metering Installations (Clause 10.26(2) of Part 10)

An asset owner must, for each GIP that connects to the grid, ensure that there is one or more certified metering installations for the GIP. TPNZ is not an asset owner but is the MEP for some GIPs and GXPs.

2.3 Use of Contractors (Clause 10.4(1) of Part 10)

A participant may perform its obligations and exercise its rights under this Part by using a contractor. A participant who uses a contractor to perform the participant's obligation under this Part remains responsible and liable for, and is not released from, the obligation, or any other obligation under this Part.

TPNZ engages ATHs to conduct certification activities and the ATHs also act as agents for the management of some certification records.

2.4 Arrangements (Clause 10.4(1) of Part 10)

If a participant must obtain a consumer's consent, approval, or authorisation under Part 10, the participant must (if relevant) ensure that the consent, approval, or authorisation extends to any participant who may be expected to rely on that consent, approval, or authorisation in order to remain in compliance with the Code, for the full term of the arrangement.

It is the responsibility of the reconciliation participant to have an arrangement with an MEP in accordance with clause 10.36. The reconciliation participant is also TPNZ and TPNZ as an MEP has authorisation for all activities required to achieve compliance in accordance with the Code.

2.5 Dispute Resolution (Clause 10.50(1) to (3) of Part 10)

Dispute resolution:

- Participants must in good faith use best endeavours to resolve any disputes related to Part 10 of the Code.
- Disputes that are unable to be resolved may be referred to the Authority for determination.
- Complaints that are not resolved by the parties or the Authority may be referred to the Rulings Panel by the Authority or participant.

TPNZ has not been required to resolve any disputes in accordance with this clause.

2.6 MEP Identifier (Clause 7(1) of Schedule 10.6)

The MEP must ensure it has a unique participant identifier and must use this participant identifier (if required) to correctly identify its information. TPNZ uses the TPNZ code for all MEP functions.

2.7 Communication Equipment Compatibility (Clause 40 of Schedule 10.7)

The MEP must ensure that the use of its communication equipment complies with the compatibility and connection requirements of any communication network operator the MEP has equipment connected to.

Most data communication is via “Transmission Control Protocol, Internet Protocol” (TCP/IP) or secure “Virtual Private Network” (VPN) arrangements. These arrangements were designed in conjunction with a telecommunications provider and compatibility has been addressed. Some standard modems are in use and these are compliant with the relevant standards. Compliance is achieved.

3. Process for a Change of MEP

3.1 Payment of Costs to Losing MEP (Clause 10.22 (2)&(3) of Part 10)

The gaining MEP must pay the losing MEP a proportion of the costs within 20 business days of assuming responsibility. The costs are those directly and solely attributable to the certification and calibration tests of the metering installation or its components from the date of switch until the end of the current certification period.

It is unlikely MEP switching will occur for metering installations TPNZ is responsible for, and it has not occurred during the audit period.

3.2 MEP Response to Switch Notification (Clause 1(1) of Schedule 11.4)

Most TPNZ metering is not on the registry; therefore, this clause will seldom apply. TPNZ is the MEP for metering at three ICPs but switching has not occurred for any of these.

3.3 Registry Notification of Metering Records (Clause 2 of Schedule 11.4)

TPNZ is the MEP for metering at three ICPs but there have not been any MEP changes.

3.4 Provision of Metering Records to Gaining MEP (Clause 5 of Schedule 10.6)

During an MEP switch, a gaining MEP may request access to the losing MEP’s metering records.

On receipt of a request, the losing MEP has 10 business days to provide the gaining MEP with the metering records or the facilities to enable the gaining MEP to access the metering records. The MEP must ensure that:

- The metering records are only received by the gaining MEP or its contractor
- The security of the metering records is maintained
- Only the specific metering records required for the purposes of the gaining MEP exercising its rights and performing its obligations are provided.

It is unlikely MEP switching will occur for metering installations TPNZ is responsible for.

3.5 Termination of MEP Responsibility (Clause 10.23(2) of Part 10)

Even if the MEP ceases to be responsible for an installation, the MEP must either:

- Comply with any continuing obligations; or
- Before its continuing obligations terminate, enter into an arrangement with a participant to assume those obligations.

TPNZ ceased to be responsible for metering at the Otahuhu plant, which was decommissioned. I confirmed the records are still available. Compliance is confirmed.

4. Installation and Modification of Metering Installations

4.1 Design Reports for Metering Installations (Clause 2 of Schedule 10.7)

The MEP must obtain a design report for each proposed new metering installation or a modification to an existing metering installation, before it installs the new metering installation or before the modification commences.

This report must be prepared by a person with the appropriate level of skills, expertise, experience and qualifications and must include:

- A schematic drawing
- Details of the configuration scheme that programmable metering components are to include
- Confirmation the configuration scheme has been approved by an approved test laboratory
- Maximum interrogation cycle
- Any compensation factor arrangements
- Method of certification required
- Name and signature of the person who prepared the report and the date it was signed.

The MEP must provide the design report to the certifying ATH before the ATH installs or modifies the metering installation (or a metering component in the metering installation).

Design reports are prepared by ATHs or consultants for TPNZ. The reports include all of the requirements noted above, including the signature of the person who prepared the report.

I specifically examined two recent design reports (Ashley and Henderson) to check compliance. The certification records become part of the design report on completion of certification.

4.2 Contracting With ATH (Clause 9 of Schedule 10.6)

The MEP must, when contracting with an ATH in relation to the certification of a metering installation, ensure that the ATH has the appropriate scope of approval for the required certification activities.

TPNZ uses Electrix and Broadspectrum as ATHs and they each have a current and appropriate scope of approval.

4.3 MEP Obligations for Metering Installations (Clause 4 of Schedule 10.7)

4.3.1 Metering Installation Design & Accuracy (Clause 4(1) of Schedule 10.7)

The MEP must ensure that:

- The sum of the measured error and uncertainty does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of the metering installation.
- The design of the installation (including data storage device and interrogation system) will ensure the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of installation.
- The metering installation complies with the design report and the requirements of Part 10.

TPNZ has a handover process from ATHs and this process involves a check of metering accuracy and design compliance.

With regard to the design of the installation (including data storage device and interrogation system), TPNZ ensures the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of installation. There are no components installed where “coarse” rounding is in place for the data or where meters with a low pulse rate are connected to separate data storage devices. Data is recorded to three decimal places.

TPNZ ensures the metering installation complies with the design report and the requirements of Part 10 by requiring the ATH to confirm the installations match the design, or by requiring updates to be provided if the installation does not match the design.

4.3.2 Subtractive Metering (Clause 4(2)(a) of Schedule 10.7)

For metering installations for ICPs that are not also NSPs, the MEP must ensure that the metering installation does not use subtraction to determine submission information used for the purposes of Part 15.

TPNZ has some metering installations at ICPs but none where subtraction occurs.

4.3.3 HHR Metering (Clause 10.26(10) of Part 10)

For metering installations for ICPs that are not also NSPs, the MEP must ensure that all category 3 or higher metering installations must be half-hour metering installations.

TPNZ has some metering at ICPs and all are HHR.

4.3.4 NSP Metering (Clause 4(3) of Schedule 10.7)

The MEP must ensure that the metering installation for each NSP that is not connected to the grid does not use subtraction to determine submission information used for the purposes of Part 15 and is a half-hour metering installation.

TPNZ is not the MEP for any NSP metering not connected to the grid, or interconnection point metering.

4.3.5 Grid Metering (Clause 10.26(10) of Part 10)

The MEP must ensure that each point of connection to the grid for which there is a metering installation for which it is responsible has a half hour metering installation.

All of TPNZ's metering installations are HHR.

4.3.6 Suitability of Metering Installations (Clause 4(4) of Schedule 10.7)

The MEP must, for each metering installation for which it is responsible, ensure that it is appropriate having regard to the physical and electrical characteristics of the point of connection.

TPNZ's metering installations are all installed in appropriate accommodation.

4.4 Grid Connected Metering Design (Clause 26(6)&(8) of Part 10)

The participant responsible for providing the metering installation must, for each proposed new metering installation or for any proposed modification to metering for a point of connection to the grid:

- a) Provide a copy of the metering installation design to the grid owner before ordering equipment
- b) Provide the grid owner with at least three months to review and comment on the metering installation design
- c) Respond, within three business days of receipt, to any request from the grid owner for additional details or required changes to the metering installation
- d) Ensure that any reasonable changes to the metering installation or the metering installation configuration requested by the grid owner are carried out.

I followed the process through by checking a recent example and all of the timeframes were met, however this clause relates to TPNZ as a participant and not as an MEP.

4.5 Installation & Modification of Metering Installations (Clause 10.34(2) to (4) of Part 10)

If a metering installation is proposed to be installed or modified at a POC, other than a POC to the grid, the MEP must consult with and use its best endeavours to agree with the distributor and the trader for that POC, before the design is finalised, on the metering installations:

- Required functionality
- Terms of use
- Required interface format
- Integration of the ripple receiver and the meter
- Functionality for controllable load.

Each participant involved in the consultations must use its best endeavours to reach agreement and act reasonably and in good faith.

If participants cannot reach an agreement, the participants may refer the matter to the Authority.

TPNZ has metering installations at ICPs but these have not been modified during the audit period. Although these metering installations have ICPs, they could still be considered points of connection to the grid and therefore this clause would not apply.

4.6 Cancellation of Certification (Clause 20 of Schedule 10.7)

The certification of a metering installation is automatically cancelled on the date on which one of the following events takes place:

- a) The metering installation is modified otherwise than under subclause 19(3) or 19(6).
- b) The metering installation is classed as outside the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, defective or not fit for purpose under this Part or any audit.
- c) An ATH advises the metering equipment provider responsible for the metering installation of a reference standard or working standard used to certify the metering installation not being compliant with this Part at the time it was used to certify the metering installation, or the failure of a group of meters in the statistical sampling recertification process for the metering installation, or the failure of a certification test for the metering installation.
- d) The manufacturer of a metering component in the metering installation determines that the metering component does not comply with the standards to which the metering component was tested:
- e) An inspection of the metering installation, that is required under this Part, is not carried out in accordance with the relevant clauses of this Part.

- f) If the metering installation has been determined to be a lower category under clause 6 and the maximum current conveyed through the metering installation at any time exceeds the current rating of its metering installation category as set out in Table 1 of Schedule 10.1:
- g) The metering installation is certified under clause 14 and sufficient load is available for full certification testing and has not been retested under clause 14(4).
- h) A control device in the metering installation certification is, and remains for a period of at least 10 business days, bridged out under clause 35(1).
- i) The metering equipment provider responsible for the metering installation is advised by an ATH under clause 48(6)(b) that a seal has been removed or broken and the accuracy and continued integrity of the metering installation has been affected.

A metering equipment provider must, within 10 business days of becoming aware that one of the events above has occurred in relation to a metering installation for which it is responsible, update the metering installation's certification expiry date in the registry.

TPNZ has not had any cancelled certification during the audit period.

4.7 Metering Infrastructure (Clause 3 of Schedule 11.4)

The MEP must ensure that for each metering installation:

- An appropriately designed metering infrastructure is in place.
- Each metering component is compatible with and will not interfere with any other component in the installation.
- All components integrate to provide a functioning system.
- Is correctly and accurately integrated within the associated metering infrastructure.

TPNZ's metering infrastructure operates in a compliant manner and compliance is confirmed.

4.8 Responsibility for Metering at ICP (Clause 11.18B(3) of Part 11)

If an ICP is to be decommissioned, the MEP who is responsible for the ICP must:

- Advise the trader no later than three business days prior to decommissioning that the trader must as part of the decommissioning carry out a final interrogation; or
- If the MEP is responsible for the interrogation of the metering installation, arrange for a final interrogation to take place.

TPNZ is responsible for metering at three ICPs. None have been decommissioned.

4.9 Measuring Transformer Burden and Compensation Requirements (Clause 31(4) & (5) of Schedule 10.7)

The MEP must, before approving the addition of or change to the burden or compensation factor of a measuring transformer in a metering installation, consult with the ATH who certified the metering installation.

If the MEP approves the addition or change it must ensure the metering installation is recertified by an ATH before the addition or change becomes effective.

Current transformers only have metering equipment connected. Some voltage transformers have other equipment connected and this equipment is included in the certification process, including the sealing information. No changes have occurred in accordance with this clause during the audit period.

4.10 Changes to Software ROM or Firmware (Clause 39(1) & (2) of Schedule 10.7)

The MEP must, if it proposes to change the software, ROM or firmware of a data storage device installed in a metering installation, ensure that, before the change is carried out, an approved test laboratory:

- Tests and confirms that the integrity of the measurement and logging of the data storage device would be unaffected
- Documents the methodology and conditions needed to implement the change
- Advises the ATH that certified the metering installation of any change that might affect the accuracy of the data storage device.

The MEP must, when implementing a change to the software, ROM or firmware of a data storage device installed in a metering installation:

- Carry out the change in accordance with the methodology and conditions identified by the approved test laboratory under clause 39(1)(b)
- Keep a list of the data storage devices that were changed
- Update the metering records for each installation affected with the details of the change and the methodology used.

No changes have occurred during the audit period. Any changes would be conducted by ATHs in their laboratory in accordance with these clauses.

5. Metering Records

5.1 Accurate and Complete Records (Clause 4(1) of Schedule 10.6)

The MEP must, for each metering installation for which it is responsible, keep accurate and complete records of the attributes set out in Table 1 of Schedule 11.4.

The MEP must, for each metering installation for which it is responsible (other than an interim certified metering installation), keep accurate and complete records, which include:

- i. The certification expiry date of each metering component in the metering installation.
- ii. All equipment used in relation to the metering installation, including serial numbers and details of the equipment's manufacturer.
- iii. The manufacturer's or (if different) most recent test certificate for each metering component in the metering installation.
- iv. The metering installation category and any metering installations certified at a lower category.
- v. All certification reports and calibration reports showing dates tested, tests carried out, and test results for all metering components in the metering installation.
- vi. The contractor who installed each metering component in the metering installation.
- vii. The certification sticker, or equivalent details, for each metering component that is certified under Schedule 10.8 in the metering installation.
- viii. Any variations or use of the 'alternate certification' process.
- ix. Seal identification information.
- x. Any applicable compensation factors.
- xi. The owner of each metering component within the metering installation.
- xii. Any applications installed within each metering component.
- xiii. The signed inspection report confirming that the metering installation complies with the requirements of Part 10.

I checked TPNZ's records to confirm that all of the records listed above are available, either from TPNZ or from the relevant ATH.

5.2 Inspection Reports (Clause 4(2) of Schedule 10.6)

The MEP must, within 10 business days of receiving a request from a participant for a signed inspection report prepared under clause 44 of Schedule 10.7 make a copy of the report available to the participant. TPNZ is the participant and the MEP and TPNZ has not been requested to supply any inspection reports but these are available and can be supplied on request.

5.3 Retention of Metering Records (Clause 4(3) of Schedule 10.6)

The MEP must keep metering installation records for 48 months after any metering component is removed or any metering installation is decommissioned.

TPNZ or the ATH keeps records indefinitely.

5.4 Provision of Records to ATH (Clause 6 of Schedule 10.6)

If the MEP contracts with an ATH to recertify a metering installation and the ATH did not previously certify the metering installation, the MEP must provide the ATH with a copy of all relevant metering records not later than 10 business days after the contract comes into effect.

TPNZ has provided information to ATH's in the past and this may occur in future. There are no current examples to examine.

6. Maintenance of Registry Information

6.1 Provision of Registry Information (Clause 7 of Schedule 11.4)

The MEP must provide the information indicated as being 'required' in Table 1 of clause 7 of Schedule 11.4 to the registry.

TPNZ is the MEP for three ICPs. All of the registry data is correct and measuring transformer data is now recorded.

6.2 Changes to Registry Records (Clause 3 of Schedule 11.4)

The MEP must advise the registry of the registry metering records or any change to the registry metering records for a metering installation for which it is responsible, no later than 10 business days following the electrical connection of an ICP that is not also an NSP and any subsequent change in any matter covered by the metering records.

TPNZ has three metering installations at ICPs. No changes occurred during the audit period.

6.3 Correction of Errors in Registry (Clause 6 of Schedule 11.4)

By 0900 hours on the 13th business day of each reconciliation period, the MEP must obtain from the registry a list of ICPs and the registry metering records for the ICPs for the metering installations the MEP is responsible for.

No later than five business days following collection of data from the registry, the MEP must compare the information obtained from the registry with the MEP's own records.

Within five business days of becoming aware of any discrepancy between the MEP's records and the information obtained from the registry, the MEP must correct the records that are in error and advise the registry of any necessary changes to the registry metering records.

TPNZ relies on the registry as the database of record. Compliance is confirmed.

6.4 Participants to Provide Accurate Information (Clause 10.6 of Part 10 & 11.2 of Part 11)

A participant must take all practicable steps to ensure that information that the participant provides to any person under Part 10 and 11 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 Part 10, the participant has not complied with that obligation, the participant must, as soon as practicable, provide such further information, or corrected information, as is necessary to ensure that the participant does comply.

TPNZ is taking all practicable steps to ensure MEP related information is complete, accurate and compliant with the Code.

7. Certification of Metering Installations

7.1 Certification and Maintenance (Clause 10.38(a), Clause 1 & 15 of Schedule 10.7)

The MEP must obtain and maintain certification for all installations and metering components for which it is responsible. The MEP must ensure it:

- Performs regular maintenance, battery replacement, repair/replacement of components of the metering installations
- Updates the metering records at the time of the maintenance
- Has a recertification programme that will ensure that all installations are recertified prior to expiry.

All metering installations have current certification. TPNZ has a schedule and weekly reporting to manage recertification and inspection activities. Compliance is confirmed.

7.2 Notification of Certification Dates to RM (Clauses 10.26 7(a) & 11 of Part 10)

If a metering installation for a point of connection to the grid is recertified, the participant responsible for providing the metering installation must, within 10 business days of the date of certification or recertification, advise the reconciliation manager of the metering installation's new certification expiry

date. This is a “responsible party” responsibility and not an MEP responsibility, so I have made comments in TPNZ’s reconciliation participant audit report in relation to this clause.

7.3 Certification Tests (Clause 10.38(b) of Part 10 and Clause 9 of Schedule 10.6)

The MEP must ensure that an ATH performs the appropriate certification and recertification tests and that the ATH has the appropriate scope of approval to certify and recertify the metering installation.

TPNZ has ensured ATH’s have the appropriate approval for metering installation certification and recertification. I examined the certification records for some metering installations and I confirm the appropriate tests are conducted and the results are recorded.

TPNZ obtains and reviews a copy of the ATH audit report for ATHs used for compliance activities where TPNZ is the MEP.

Standard maintenance practices are in place, which stipulate processes to be followed. These contain more detail than is required by the Code.

7.4 Active and Reactive Capability (Clause 10.37(1) & (2)(a) of Part 10)

For any category 2 or higher HHR metering installation that is certified after 29 August 2013, the MEP must ensure that the installation has active and reactive measuring and recording capability.

Consumption only installations must measure and separately record:

- i. import active energy
- ii. import reactive energy
- iii. export reactive energy.

All other installations must measure and separately record:

- i. import active energy
- ii. export active energy
- iii. import reactive energy
- iv. export reactive energy.

All grid connected POCs with metering installations which are certified after 29 August 2013 should measure and separately record:

- i. import active energy
- ii. export active energy
- iii. import reactive energy
- iv. export reactive energy.

TPNZ is the MEP for grid connected metering, and it is all four quadrant as required by this clause.

7.5 Local Service Metering (Clause 10.37(2)(b) of Part 10)

The accuracy of each local service metering installation in grid substations must be within the tolerances set out in Table 1 of Schedule 10.1. This clause relates to Transpower as an MEP and these meters are certified as normal in accordance with Table 1.

7.6 Measuring Transformer Burden (Clause 30(1) & 31(2) of Schedule 10.7)

The MEP must not permit a measuring transformer to be connected to equipment used for a purpose other than metering, except in certain limited circumstances.

The MEP must ensure that a change to, or addition of, a measuring transformer burden or a compensation factor related to a measuring transformer is carried out only by the ATH who most recently certified the metering installation and for a POC to the grid, by a suitably qualified person approved by both the MEP and the ATH who most recently certified the metering installation.

Current transformers only have metering equipment connected. Some voltage transformers have other equipment connected and this equipment is included in the certification process, including the sealing information.

If work is conducted resulting in a burden change the party will be approved and the ATH will be involved for any compliance activities.

7.7 Certification as a Lower Category (Clause 6 of Schedule 10.7)

A category 2 or higher metering installation may be certified at a lower category than would be indicated solely on the primary rating of the current if:

- Protection is lower than the maximum allowable primary rating
- The MEP, based on historical metering data, reasonably believes that the maximum current will at all times during the intended certification period be lower than the current setting of the protection device for the category for which the metering installation is certified, or is required to be certified by the Code; or
- The MEP, based on historical metering data, reasonably believes that the metering installation will use less than 0.5 GWh in any 12 month period.

If a metering installation is categorised under clause 6(1)(b), the ATH may, if it considers appropriate, at the MEP's request, determine the metering installation's category according to the metering installation's expected maximum current.

If a meter is certified in this manner:

- The MEP must, each month, obtain a report from the participant interrogating the metering installation, which details the maximum current from raw meter data from the metering installation by either calculation from the kVA by trading period, if available, or from a

maximum current indicator if fitted in the metering installation conveyed through the point of connection for the prior month; and

- If the MEP does not receive a report, or the report demonstrates that the maximum current conveyed through the POC was higher than permitted for the metering installation category it is certified for, then the certification for the metering installation is automatically cancelled.

TPNZ has not approved the certification of any metering installations as a lower category.

7.8 Insufficient Load for Certification Tests (Clause 14 of Schedule 10.7)

If there is insufficient electricity conveyed through a POC to allow the ATH to complete a prevailing load test for a metering installation that is being certified as HHR and the ATH certifies the metering installation the MEP must:

- Obtain and monitor raw meter data from the metering installation at least once each calendar month to determine if load during the month is sufficient for a prevailing load test to be completed:
- If there is sufficient load, arrange for an ATH to complete the tests (within 20 business days)

If the tests conducted under clause 14(4) of Schedule 10.7 demonstrate that the metering installation is not within the relevant maximum permitted error:

- The metering installation certification is automatically revoked:
- The MEP must follow the procedure for handling faulty metering installations (10.43 - 10.48).

TPNZ has approved the certification of the metering installation at Bombay and some other locations in accordance with this clause. Monitoring is in place and reporting is sent to ATHs on a regular basis in compliance with this clause. I reviewed copies of this notification.

7.9 Alternative Certification Requirements (Clause 32 of Schedule 10.7)

If an ATH cannot comply with the requirements to certify a metering installation due to measuring transformer access issues, and therefore certifies the metering installation in accordance with clause 32(1) of Schedule 10.7, the MEP must:

- i. Advise the market administrator, by no later than 10 business days after the date of certification of the metering installation, of the details in clause 32(2)(a) of Schedule 10.7
- ii. Respond, within five business days, to any requests from the market administrator for additional information
- iii. Ensure that all of the details are recorded in the metering installation certification report
- iv. Take all steps to ensure that the metering installation is certified before the certification expiry date.

If the market administrator determines the ATH could have obtained access the metering installation is deemed to be defective and the MEP must follow the process of handling faults metering installations in clauses 10.43 to 10.48.

Alternative certification has not been applied for any installations where TPNZ is the MEP.

7.10 Timekeeping Requirements (Clause 23 of Schedule 10.7)

If a time keeping device that is not remotely monitored and corrected controls the switching of a meter register in a metering installation, the MEP must ensure that the time keeping device has a time keeping error of not greater than an average of two seconds per day over a period of 12 months and is monitored and corrected at least once every 12 months.

TPNZ does not have any metering installations with time clocks.

7.11 Control Device Bridged Out (Clause 35 of Schedule 10.7)

The MEP must, within 10 business days of bridging out a control device or becoming aware of a control device being bridged out, notify the following parties:

- The relevant reconciliation participant
- The relevant metering equipment provider.

TPNZ does not have any control devices.

7.12 Control Device Reliability Requirements (Clause 34(5) of Schedule 10.7)

If the MEP is advised by an ATH that the likelihood of a control device not receiving signals would affect the accuracy or completeness of the information for the purposes of Part 15, the MEP must, within three business days after being advised, advise the following parties of the ATH's determination (including all relevant details):

- i. The reconciliation participant for the POC for the metering installation
- ii. The control signal provider.

TPNZ does not have any control devices.

7.13 Statistical Sampling (Clauses 16(1) & (5) of Schedule 10.7)

The MEP may arrange for an ATH to recertify a group of category 1 metering installations for which the MEP is responsible using a statistical sampling process.

The MEP must update the registry in accordance with Part 11 on the advice of an ATH as to whether the group meets the recertification requirements.

TPNZ does not have any category 1 metering installations.

7.14 Compensation Factors (Clause 24(3) of Schedule 10.7)

If a compensation factor must be applied to a metering installation that is an NSP, the MEP must advise the reconciliation participant responsible for the metering installation of the compensation factor within 10 days of certification of the installation.

In all other cases, the MEP must advise the registry of the compensation factor.

TPNZ does not have any metering installations with external compensation factors.

7.15 Metering Installations Incorporating a Meter (Clause 26(1) of Schedule 10.7)

The MEP must ensure that each meter is certified in metering installations it is responsible for.

I checked several metering installation certification records and confirm that meters are always certified.

7.16 Metering Installations Incorporating a Measuring Transformer (Clause 28(1) of Schedule 10.7)

The MEP must ensure that each measuring transformer is certified in metering installations it is responsible for.

I checked several metering installation certification records and confirm that measuring transformers are always certified.

7.17 Metering Installations Incorporating a Data Storage Device (Clause 36(1) of Schedule 10.7)

The MEP must ensure that each data storage device is certified in metering installations it is responsible for.

I checked several metering installation certification records and confirm that data storage devices are always certified.

7.18 Metering Installations Incorporating a Control Device (Clause 33 of Schedule 10.7)

A reconciliation participant that is responsible for a point of connection must advise the metering equipment provider responsible for the metering installation at the point of connection if a control device in the metering installation is to be used by the reconciliation participant for any purpose under Part 15 to control a load or switch meter registers.

An MEP (clause states reconciliation participant but should state MEP) must ensure that a control device is certified under this Part by an ATH before the reconciliation participant uses any raw meter data that depends on the operation of the control device, for any purpose under Part 15 if:

- a) The control device is contained in a metering installation for which the metering equipment provider is responsible.
- b) The metering installation is dependent on control signals for its operation.
- c) The metering equipment provider uses the control device to control a load or switch meter registers.

TPNZ does not have any control devices.

7.19 Interim Certification (Clause 18 of Schedule 10.7)

The MEP must ensure that each interim certified metering installation on 28 August 2013 is certified by 1 April 2015.

TPNZ does not have any interim certified metering installations.

7.20 Notification of ATH Approval (Clause 7 of Schedule 10.7)

If the MEP is notified by the Authority that an ATH's approval has expired, been cancelled or been revised, the MEP must treat all metering installations certified by the ATH during the period where they were not approved to perform the activities as being defective and follow the procedures set out in 10.43 to 10.48.

If an ATH is no longer approved by the Authority, the Authority must tell the MEP and any work the ATH has done must be treated as being defective.

TPNZ is not aware of any ATH's without approval. Electrix and Broadspectrum are both current.

8. Inspection of Metering Installations

8.1 Category 1 Inspections (Clause 45 of Schedule 10.7)

TPNZ does not have any Category 1 metering installations.

8.2 Category 2 to 5 Inspections (Clause 46 of Schedule 10.7)

The MEP must ensure that each category 2 or higher category of metering installation is inspected by an ATH at least once within the applicable period, which is 120 months for Category 2, 60 months for Category 3, 30 months for category 4, and 18 months for Category 5 starting from the date of the metering installation's most recent certification.

The inspection schedule is managed in Maximo, TPNZ's asset management system. There are no overdue inspections.

8.3 Inspection Reports (Clause 44(5) of Schedule 10.7 & 4(2) of Schedule 10.6)

The MEP must, within 20 business days of receiving an inspection report from an ATH, undertake a comparison of the information received with its own records, investigate and correct any discrepancies, and update the metering records in the registry.

The MEP must make a copy of the signed inspection report available to a participant within 10 business days of the participant making the request.

I checked several inspection reports and confirm compliance with this clause.

8.4 Removal or Breakage of Seals (Clause 48(4) & (5) of Schedule 10.7)

If the MEP is advised of a broken or removed seal, it must use reasonable endeavours to determine:
Who removed or broke the seal

- The reason for the removal or breakage

The MEP must arrange for an ATH to carry out an inspection of the removal or breakage and determine any work required to remedy the removal or breakage.

The MEP must make the above arrangements within

- three business days, if the metering installation is category 3 or higher
- 10 business days if the metering installation is category 2
- 20 business days if the metering installation is category 1.

TPNZ has a process in place for the management of seals and any subsequent investigation and reporting. ATHs maintain a database of seal information.

9. Faulty Metering Installations

9.1 Investigation of Faulty Metering Installations (Clause 10.43(4) of Part 10)

If the MEP is advised or becomes aware that a metering installation may be inaccurate, defective, or not fit for purpose, it must investigate and report on the situation to all affected participants as soon as reasonably practicable after becoming aware of the information, but no later than 20 business days for Category 1, 10 business days for Category 2 and 5 business days for Category 3 or higher.

TPNZ has a process in place for the management of faulty metering installations and any subsequent investigation and reporting. Validation is in place at the time of interrogation and any issues are likely to be discovered within a short timeframe.

I checked an example where there had been an issue at Maungatapere. The issue was identified immediately and all of the relevant investigations and notifications were conducted in accordance with the Code and within the specified timeframes. The matter was resolved by the ATH and the raw meter data was corrected appropriately.

9.2 Testing of Faulty Metering Installations (Clause 10.44 of Part 10)

If a report prepared under clause 10.43(4)(c) demonstrates that a metering installation is inaccurate, defective, or not fit for purpose, *the MEP must arrange for an ATH to test the metering installation and provide a 'statement of situation'.*

If the MEP is advised by a participant under clause 10.44(2)(a) that the participant disagrees that the report that demonstrates that the metering installation is accurate, not defective and fit for purpose, the MEP must arrange for an ATH to:

- Test the metering installation
- Provide the MEP with a statement of situation within 5 business days of:
 - Becoming aware that the metering installation may be inaccurate, defective or not fit for purpose: or
 - Reaching an agreement with the participant.

The MEP is responsible for ensuring the ATH carries out testing as soon as practical and provides a statement of situation.

TPNZ has a process in place for the management of faulty metering installations and any subsequent investigation and reporting. I checked a specific example to confirm compliance with this clause.

9.3 Statement of Situation (Clause 10.46(2) of Part 10)

The MEP is required to provide copies of the statement of situation to the affected participants and market administrator within three business days of receiving the statement from the ATH.

TPNZ has a process in place for the management of faulty metering installations and any subsequent investigation and reporting. I checked a specific example to confirm compliance with this clause.

9.4 Correction of Raw Meter Data (Clause 10.48 of Part 10)

If the MEP is notified of a question or request for clarification in accordance with clause 10.48(1), the MEP must, within 10 business days:

- Respond in detail to the questions or requests for clarification
- Advise the reconciliation participant responsible for providing submission information for the POC of the correction factors to apply and period the factors should apply to.

TPNZ has a process in place for the management of faulty metering installations and any subsequent investigation and reporting. I checked a specific example to confirm compliance with this clause.

10. Access to Metering Installations & Raw Meter Data

10.1 Access to Raw Meter Data (Clause 1 of Schedule 10.6)

The MEP must, within 10 business days of receiving a request from authorised parties, give the party access to raw meter data.

The MEP must only give access to a trader or person if the trader or person has entered into a contract to collect, obtain and use the raw meter data with the end customer.

When giving access to information, the MEP must provide the raw meter data, or the means to enable the party to access the raw meter data.

The MEP must, when providing raw meter data or access to an authorised person use appropriate procedures to ensure that:

- The raw meter data is received only by that authorised person or a contractor to the person
- The security of the raw meter data and the metering installation is maintained
- Access to the raw meter data is limited to only the specific raw meter data under clause 1(7)(c) of Schedule 10.6.

The MEP must not give an authorised person access to raw meter data if the circumstances in clause 2(1) of Schedule 10.6 apply.

The MEP must within 10 business days of receiving a request from one of the following parties, arrange physical access to each component in a metering installation:

- A relevant reconciliation participant with whom it has an arrangement (other than a trader)
- The Authority
- An ATH
- An auditor
- A gaining MEP.

This access must include all necessary means to enable the party to access the metering components. When providing access the MEP must ensure that the security of the metering installation is maintained and physical access is limited to only the access required for the purposes of the Code, regulations in connection with the party's administration, audit and testing functions.

TPNZ as an MEP does not control access to raw meter data. TPNZ as a participant will consider requests for access to data or components.

10.2 Access to Metering Installations (Clause 3(5) of Schedule 10.6)

If the party requires urgent physical access, the MEP must use its best endeavours to provide physical access. TPNZ can facilitate physical access as required.

10.3 Electronic Interrogation of Metering Installations (Clause 8 of Schedule 10.6)

TPNZ does not conduct electronic data collection as an MEP.

10.4 Security of Metering Data (Clause 10.15(2) of Part 10)

The MEP must take reasonable security measures to prevent loss or unauthorised access, use, modification or disclosure of the metering data.

This is subject to the MEP's obligations under other enactments, the MEP being compelled by law, and to any other material the Authority incorporates into this Code (clause 10.15(3)).

TPNZ does not conduct electronic data collection as an MEP.

10.5 Demarcation Point (Clause 10.9 of Part 10)

The demarcation of the responsibility of a metering equipment provider under this Part and a reconciliation participant under Part 15 is at the services access interface.

A metering equipment provider is responsible for providing and maintaining the services access interface.

The services access interface for a metering installation is determined by the ATH certifying the metering installation under clause 10 of Schedule 10.4, and recorded in the metering installation certification report under clause 10 of Schedule 10.4.

The services access interface is now recorded in the metering installation certification report by ATHs, with reference to the design report, which states the location.

11. Conclusions

The audit found compliance with all relevant clauses of the Code. Strong controls are in place to ensure compliance issues do not arise.

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 in Section 12 provides some guidance on this matter and recommends an audit frequency of 36 months.

Table of Non Compliance

Subject	Section	Clause	Non compliance	Indicative Impact	Audit History	Procedures	Remedial Action
			Nil				

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Remedial Action
			Nil	

Signed By:

A handwritten signature in blue ink, appearing to be 'S. Woods', on a light-colored background.

**Steve Woods – Veritek Limited
Electricity Authority Approved Auditor**

Signed By:

A handwritten signature in black ink, appearing to be 'I. Martin', on a light-colored background.

**Ian Martin
Metering Services Manager
Transpower Limited**

12. Audit Date Recommendation (Clause 1(1)(d) of Schedule 10.5

This clause requires auditors to recommend the next audit date, based on the matrix below.

The audit found compliance with the Code, therefore the “risk category” is G. A risk category of G translates to a recommendation for an audit within 24 months, with eligibility for 36 months to be considered.

Function Risk Category Table

Function	Regulatory Priority (From Table 1)	Non-compliances (NC) and Recommendations (Rec)					
		0 Rec 0 NC	1-3 Rec	> 3 Rec	1-2 NC	3-4 NC	> 4 NC
Certification of metering installations	Extreme	G	D	C	B	B	A
Installation or modification of metering installations	Extreme	G	D	C	C	B	A
Maintenance of registry information	Extreme	G	D	C	C	B	A
Metering records	High	G	D	C	C	B	B
Inspections of metering installations	High	G	D	D	C	C	B
Process for handling faulty metering installations	Moderate	G	E	D	C	C	B
Access to and provision of raw meter data and metering installations	Moderate	G	F	E	D	C	B
Process for the change of MEP	Low	G	F	E	D	C	B

Audit Frequency Matrix

Risk Category	MEP Action Required	Audit Frequency (Maximum)
A	Close non-compliances within timescale agreed during audit. Revisit within 3 months.	3 Months
B	Close non-compliances within timescale agreed during audit. Revisit within 6 months.	6 months
C	Close non-compliances within timescale agreed during audit. Revisit within 12 months.	12 months
D	Close non-compliances within timescale agreed during audit. Revisit within 18 months.	18 months
E	Close non-compliances within timescale agreed during audit. Revisit within 24 months.	24 months
F	Address recommendations within timescale agreed during audit. Eligible for consideration for 36 month audits.	24 – 36 months
G	Eligible for consideration for 36 month audits.	24 – 36 months

13. Audit Summary for Electricity Authority Website

As per clause 9 of schedule 10.2 of the Electricity Industry Participation Code, the Authority is required to publish a summary of each audit report.

Date of audit report:	10/03/16
Participant involved:	Transpower New Zealand Limited
Auditor involved:	Steve Woods – Veritek Limited
Scope of the audit:	<p>In accordance with clause 1(2) of schedule 10.5, the audit scope includes:</p> <p>(a) the appropriate management and maintenance of each metering installation for which the metering equipment provider is responsible, including:</p> <p>(i) maintenance of metering records; and</p> <p>(ii) maintenance of metering components; and</p> <p>(iii) certification of metering components and metering installations; and</p> <p>(iv) metering installations that have been certified at a lower category under clause 6 of Schedule 10.7; and</p> <p>(v) inspections in accordance with this Code; and</p> <p>(vi) investigations under clause 10.43(4); and</p> <p>(b) the metering equipment provider's provision of metering records to:</p> <p>(i) the registry; and</p> <p>(ii) the reconciliation manager; and</p> <p>(c) the metering equipment provider's provision of access under this Part to:</p> <p>(i) raw meter data:</p> <p>(ii) metering records:</p> <p>(iii) the metering installation; and</p> <p>(d) the security of:</p> <p>(i) each metering installation for which the metering equipment provider is responsible.</p>
Outcome of the audit:	Compliant

14. TPNZ Comments