Title	**Calibrate electricity revenue metering systems in the electricity supply industry**		
Level	**5**	**Credits**	**10**

Purpose	People credited with this unit standard are able to: • determine current transformer calibration requirements, • connect and operate current transformer calibration equipment, • analyse and report current transformer calibration results, • determine electricity meter calibration requirements, • connect and operate electricity meter calibration equipment, and • analyse and report electricity meter calibration results.

Classification	Electricity Supply > Electricity Supply - Metering

Available grade	Achieved

Guidance Information

1 Safety of personnel and plant must be a priority throughout the assessment. If the safety requirements are not met the assessment must stop.

2 Performance and work practices in relation to the outcomes and performance criteria must comply with all current legislation, in particular:
- the Electricity Act 1992 and any subsequent amendments, and any regulations, codes of practice recognised under that statute;
- the Health and Safety at Work Act 2015, the Resource Management Act 1991, and their subsequent amendments;
- any electricity supply industry codes of practice and documented enterprise procedures. These include, *Safety Manual – Electricity Industry* (SM-EI) (2004) Wellington: Electricity Engineers' Association.

A full list of current legislation and industry codes is available from:
Infrastructure Industry Training Organisation
PO Box 2759
Wellington 6140.

3 Definitions
Asset owner refers to the owner of an electricity supply network that takes its point of supply from Transpower NZ or other local reticulation systems, and delivers electricity to industrial, commercial and residential customers.
Industry requirements include all asset owner requirements; manufacturers' specifications; and enterprise requirements which cover the documented workplace policies, procedures, specifications, business, and quality management requirements relevant to the workplace in which assessment is carried out.

4 Assessment of practical skills against the outcomes in this standard requires three practical assessments using three different workplace activities.

Outcomes and performance criteria

Outcome 1

Determine current transformer calibration requirements.

Performance criteria

1.1 Primary test current requirements are determined in accordance with current transformer under test, specifications, industry and asset owner's requirements.

Range includes but is not limited to – ratio, location, rating.

1.2 Equipment for test is selected.

Range may include – current injection source and leads, current transformer under test burdens, burden measurement equipment, influence measurement equipment.

Outcome 2

Connect and operate current transformer calibration equipment.

Performance criteria

2.1 Work site is set up, and safety plan and any necessary test permits obtained.

2.2 Standard current transformer burden is determined and connected.

2.3 Burden of the current transformer under test is determined and connected.

Range may include – 25% of rated burden, 100% of rated burden, in-service burden.

2.4 Calibration equipment is connected.

Range may include – primary current source, standard current transformer and burden, comparator, current transformer under test burden, burden measurement equipment, influence measurement equipment.

2.5 Current transformer under test is demagnetised.

2.6 Current transformer calibration is conducted.

Range includes but is not limited to – ratio and phase error measurement at required primary current values and connected burdens, burden measurement.

2.7 Influences are measured and recorded.

Range may include – wave form distortion, temperature, magnetic interference.

Outcome 3

Analyse and report current transformer calibration test results.

Performance criteria

3.1 Burden and calibration test results are analysed.

Range may include – previous calibration report, error application, influences.

3.2 Uncertainties are calculated for the test results.

3.3 Instruments used and calibration information is recorded, and calibration report is produced to asset owner's specifications.

Outcome 4

Determine electricity meter calibration requirements.

Performance criteria

4.1 Meter software and hardware interface requirements are determined.

Range includes but is not limited to – meter type, meter class, type of programming mode.

4.2 Safety, access and security requirements are identified and implemented.

Range may include – people, power system requirements, sealing, notification to affected parties.

4.3 Calibration parameters are established in accordance with industry and equipment specifications.

Outcome 5

Connect and operate electricity meter calibration equipment.

Performance criteria

5.1 Work site is set up, and safety plan and any necessary test permits obtained.

5.2 Calibration equipment is connected.

Range includes but is not limited to – reference meter, meter under test.

5.3 Calibration test is conducted.

Outcome 6

Analyse and report electricity meter calibration results.

Performance criteria

6.1 Calibration results are analysed.

Range may include – error application, uncertainties, influences, previous calibration reports.

6.2 Instruments used and calibration results are recorded, and calibration report is produced to asset owner's specifications.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 July 2017	31 December 2024
Review	2	2 March 2023	31 December 2024

Consent and Moderation Requirements (CMR) reference	0120

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.