Title	**Carry out acceptance, commissioning and maintenance tests on electricity supply plant and equipment**		
Level	**5**	**Credits**	**20**

Purpose	People credited with this unit standard are able to: • prepare to test plant and equipment for acceptance, commissioning and maintenance testing • set up equipment for acceptance, commissioning, and maintenance testing • carry out acceptance, commissioning and maintenance tests on plant and equipment • interpret test results and complete compliance documentation.

Classification	Electricity Supply > Electricity Supply - Power System Maintenance

Available grade	Achieved

Guidance Information

1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable legislative and industry requirements.

2 Assessment Information
- This unit standard is intended for workplace assessment using a portfolio of evidence against the performance criteria.
- The final assessment will be a professional interview with a registered and trained assessor.
- The range statements within the unit standard can be applied according to enterprise specific equipment, procedures and processes.
- A minimum of four different types of plant and equipment is required for each outcome.

3 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to:
- Electricity Act 1992 and any regulations or codes of practice recognised under that statute
- Health and Safety at Work Act 2015
- Electricity supply industry codes of practice and documented enterprise procedures, including *Safety Manual – Electricity Industry* (SM-EI) and relevant EEA guides available at www.eea.co.nz.

and any subsequent amendments and replacements.

4 Definitions

Asset owner refers to a participant who owns or operates assets used for generating or conveying electricity.
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.
CT – current transformer.
VT – voltage transformer.
CVT – capacitor voltage transformer.

Outcomes and performance criteria

Outcome 1

Prepare to test plant and equipment for acceptance, commissioning, and maintenance testing.

Range may include – power transformers, circuit breakers, disconnectors, earth switches, CTs, VTs, CVTs, substation and line protection systems, cables, batteries, charging systems, reactive power equipment;
must include – at least one commissioning test.

Performance criteria

1.1 The plant or equipment technical specifications, test specifications and performance standards are selected and interpreted in terms of asset owner's test requirements.

1.2 The selected test circuitry and equipment and inspection requirements are identified in terms of asset owner's test requirements.

1.3 The key equipment to be released from service is identified and requested for work access.

1.4 The inspection, isolation and test plans are developed to meet industry requirements.

Range requirements may include – personnel tests, test equipment to be used, programme, required outcome from inspection and tests, switching plan.

1.5 Risk assessment, safety plan and work plan are completed and approved.

Outcome 2

Set up equipment for acceptance, commissioning, and maintenance testing.

Performance criteria

2.1 An access permit, or its approved equivalent, is obtained and a safe work zone is identified.

Range may include – making release applications in a correct and timely manner, identifying safe work area with boundary markers and signs.

2.2 The test equipment is assembled and checked to be ready for carrying out testing.

Range includes but is not limited to – test equipment being checked for operation and correct connection, test leads being checked to ensure that they are not damaged and suitable for the purpose, software versions, programs and networks.

2.3 The selected test and inspection procedures are procured for referencing during testing.

Range may include – asset owner's required procedures, manufacturers' procedures or manuals.

2.4 The status of the test instrument calibrations is verified as required by test procedures.

Range includes but is not limited to – all test equipment checked to ensure that the calibration certification is valid.

2.5 Any hazards associated with the testing are identified, and safety measures are prepared and implemented.

Outcome 3

Carry out acceptance, commissioning and maintenance tests on plant and equipment.

Range may include – power transformers, circuit breakers, disconnectors, earth switches, CTs, VTs, CVTs, substation and line protection systems, cables, batteries, charging systems, reactive power systems;
must include – at least one commissioning test.

Performance criteria

3.1 Work and safety plan is implemented, communicated, and managed during tests.

3.2 Plant and equipment is isolated and prepared for testing.

3.3 The selected tests are carried out in accordance with the standard procedures and commissioning plan, or as specified by the asset owner.

3.4 The results of the tests and inspections are accurately recorded as required by standard documentation, or as specified by the asset owner.

Range may include – software testing results, hand recorded test sheets.

3.5 On successful completion of testing, plant or equipment is reinstated back into service and all necessary access permits, or its approved equivalent are completed.

Outcome 4

Interpret test results and complete compliance documentation.

Performance criteria

4.1 The documented test results are interpreted and analysed for compliance with the standard required.

Range may include – checking test results against relevant international standards, measurement uncertainty, limits of accuracy, nameplate data, manufacturer's specifications, client requirements, previous history for similar equipment, previous test records.

4.2 Compliance or non-compliance documentation is completed for each test completed.

Range may include – written reports, test results within accepted standard, recommendations for correcting non-compliant equipment, degree of non-compliance.

4.3 Test documentation is completed to asset owner requirements.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 July 2017	N/A
Rollover and Revision	2	2 March 2023	N/A

Consent and Moderation Requirements (CMR) reference	0120

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

Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.