

Title	Maintain and test substation equipment		
Level	4	Credits	15

Purpose	<p>People credited with this unit standard are able to plan and carryout: maintenance on substation operational equipment; maintenance on substation line equipment; maintenance on specialist substation equipment; oil sampling and testing.</p> <p>This unit standard partially fulfils the requirements for registration for substation maintainers with the Electrical Workers Registration Board (EWRB).</p>
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Classification	Electricity Supply > Electricity Supply - Core Skills
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Available grade	Achieved
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Guidance Information

- 1 This unit standard underpins one of two capstone assessments for registration with the EWRB for substation maintainer in the electricity supply industry.
- 2 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.
- 3 Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to: Health and Safety at Work Act 2015; Electricity Act 1992; Electricity (Safety) Regulations 2010; and any subsequent amendments and replacements; Electricity supply industry codes of practice and documented enterprise procedures, including *Safety Manual – Electricity Industry (SM-EI)* (2015) available at www.eea.co.nz.
- 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, standards, specifications, business, and quality management requirements relevant to the workplace in which assessment is carried out.

Outcomes and performance criteria

Outcome 1

Plan and carry out maintenance on substation operational equipment.

Range circuit breakers, disconnectors, earth switches, transformers, regulators, auto reclosers, disconnecter circuit breakers;
evidence of four pieces of equipment is required.

Performance criteria

- 1.1 Risk assessment and safety plan is completed prior to work being undertaken.
- 1.2 All relevant documentation, equipment manuals and test history are sourced.
- 1.3 Equipment is tested to locate operational problem.
- 1.4 Decision-making around escalation of repair or maintenance is explained.
- 1.5 Equipment is dismantled, operational problem is corrected, and equipment is re-assembled and prepared for testing.
- 1.6 Equipment is retested and checked for return to operational use.
- 1.7 All relevant documentation is completed to asset owner's standards.

Outcome 2

Plan and carry out maintenance on substation line equipment.

Range structures, insulators, bushings, conductors, bus assemblies;
evidence of four pieces of substation equipment is required.

Performance criteria

- 2.1 Risk assessment and safety plan is completed prior to work being undertaken.
- 2.2 All relevant documentation, equipment manuals and test history are sourced.
- 2.3 Equipment is tested to locate operational problem.
- 2.4 Decision-making around the escalation of repair or maintenance is explained.
- 2.5 Faulty equipment is dismantled, operational problem is corrected, and equipment is re-assembled and prepared for testing.
- 2.6 Equipment is retested and checked for return to operational use.
- 2.7 All relevant documentation is completed to asset owner's standards.

Outcome 3

Plan and carry out maintenance on specialist substation equipment.

Range may include but not limited to – surge arrestors; oil, air and water services battery supplies; capacitors; reactors; earthing transformers; neutral transformers; neutral earthing resistors; harmonic filters; line traps; evidence of two items of specialist substation equipment is required.

Performance criteria

- 3.1 Risk assessment and safety plan is completed prior to work being undertaken.
- 3.2 All relevant documentation, equipment manuals and test history are sourced.
- 3.3 Equipment is tested to locate operational problem.
- 3.4 Faulty equipment is dismantled, operational problem is corrected, and equipment is re-assembled and prepared for testing.
- 3.5 Equipment is retested and checked for return to operational use.
- 3.6 All relevant documentation is completed to asset owner’s standards.

Outcome 4

Plan and carry out oil sampling and testing.

Performance criteria

- 4.1 Risk assessment and safety plan is completed prior to work being undertaken.
- 4.2 Oil from substation equipment is sampled.
Range insulating, hydraulic.
- 4.3 Sampled oil is tested.
Range may include but is not limited to – dielectric, acidity, power factor, interfacial and dissolved gas analysis, hydrogen test; evidence of two tests is required.
- 4.4 All relevant documentation is completed to asset owner’s standards.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 March 2016	31 December 2022
Review	2	25 March 2021	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 Connexis - Infrastructure Industry Training Organisation at qualifications@connexis.org.nz if you wish to suggest changes to the content of this unit standard.