

Title	Diagnose faults on electricity supply network equipment (System Operation)		
Level	5	Credits	11

Purpose	People credited with this unit standard are able to: diagnose faults on electricity supply network equipment; restore power to electricity supply network equipment; and report outcomes of system restoration after fault investigation.
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Classification	Electricity Supply > Electricity Supply - Power System Management
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Available grade	Achieved
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Prerequisites	Unit 16284, <i>Remove and return electricity network equipment from service for access for work (System Operation)</i> ; and Unit 16279, <i>Monitor electricity supply power network system</i> ; or demonstrate equivalent knowledge and skills.
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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 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 available at www.legislation.govt.nz;
 - Electricity supply industry codes of practice and documented enterprise procedures, including Electricity Engineers' Association, *Safety Manual – Electricity Industry (SM-EI)* (current version) and relevant EEA guides available at www.eea.co.nz;
and any subsequent amendments and replacements.
- 3 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 may include the documented workplace policies, procedures, specifications, business, and quality management requirements relevant to the workplace in which assessment is carried out.

The log – the collection of logbooks, log sheets, completed authorisation forms, and other records including electronic and tape, which together form a complete record of operating events in a station or operating area.

SCADA – Supervisory Control and Data Acquisition system used for control, indication, and monitoring purposes.

Outcomes and performance criteria

Outcome 1

Diagnose faults on electricity supply network equipment.

Performance criteria

1.1 Circuit faults are diagnosed to determine if fault conditions are present.

Range may include but is not limited to – interpretation of circuit diagrams, trip and flagging relay signals, section of network out, equipment tripped, sign of damage, customer information, protection indication, circuit breaker trippings, line and/or cable test, SCADA data.

1.2 Fault conditions are responded to within response time required by asset owner.

Range may include but is not limited to – network operation standard requirement contracts, standard procedures.

1.3 Fault indications from protection equipment are monitored and documented for maintenance purposes.

Range may include but is not limited to – circuit breaker operations, drop-out fuses, protection relay flagging, or indications and fault locators, Transpower network protection indication.

1.4 SCADA system is used to monitor network equipment, control equipment, and recover operational data.

Outcome 2

Restore power to electricity supply network equipment.

Performance criteria

2.1 All relay flags are reset immediately after documenting the operations.

Range may include but is not limited to – relay indications, SCADA event log.

2.2 Supply is restored, and network equipment is re-livened.

Range may include but is not limited to – industry safety rules, network operating procedures.

2.3 Any difficulties experienced in restoring supply are identified and documented.

Range may include but is not limited to – logbook entries.

Outcome 3

Report outcomes of system restoration after fault investigation.

Performance criteria

3.1 Restoration operating work carried out is reported to supervising officer within set timeframe.

Range may include but is not limited to – brief details of what was found, repairs made, results of restoration, cause of tripping, number of customers and who affected.

3.2 Risk of further trips or faults are highlighted in report to asset owner.

Range may include but is not limited to – risk of further occurrence, other vulnerable equipment, threat to continuity of supply.

3.3 Maintenance required on network equipment is highlighted in the report to the asset owner.

Range may include but is not limited to – equipment defects, environment concerns, pollution impact on equipment.

Planned review date	31 December 2028
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	3 August 1999	31 December 2019
Revision	2	11 February 2004	31 December 2022
Rollover and Revision	3	26 November 2007	31 December 2022
Review	4	16 April 2010	31 December 2022
Review	5	23 April 2020	N/A
Rollover and Revision	6	26 February 2026	N/A

Consent and Moderation Requirements (CMR) reference	0120
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Energy and Infrastructure Industry Skills Board qualifications@energyinfra-skills.nz if you wish to suggest changes to the content of this unit standard.