

Title	Demonstrate knowledge of fault diagnosis and power restoration on electricity supply network plant and equipment		
Level	4	Credits	4

Purpose	People credited with this unit standard are able to demonstrate knowledge of locating and diagnosing faults on network plant and equipment; explain the processes required to restore power to network plant and equipment; and explain the information required for fault report documentation.
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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 10526, <i>Operate electrical equipment associated with electric lines or cables up to 66 kV</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 industry and legislative 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 cover the documented workplace policies, procedures, specifications, business and quality management requirements relevant to the workplace in which assessment is carried out.

Network plant and equipment refers to plant and equipment that form part of an electrical network used to provide and distribute electricity to industrial, commercial and residential customers.

SCADA – Supervisory Control and Data Acquisition system.

Switching refers to actions carried out by a network control centre to divert electrical current, and permit contractors to perform work safely and efficiently on an electricity supply network without discontinuing supply to customers.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of locating and diagnosing faults on network plant and equipment.

Performance criteria

1.1 Methods to locate and diagnose faults on network plant and equipment are explained.

Range may include but is not limited to – trip and flagging relay signals, section of faulted network, equipment tripped, sign of damage, customer information, protection tripping, circuit breaker tripping, results from line test, line patrols, sectionalising switching; evidence of four fault conditions is required.

1.2 Requirements for fault response times are explained.

Range may include but is not limited to – asset owner's network operation standard requirement contracts, standard supply distribution network procedures, essential services; evidence of the requirements for one fault response time is required.

1.3 Requirements for fault indications from protection equipment to be monitored and documented for maintenance purposes are explained.

Outcome 2

Explain the processes required to restore power to network plant and equipment.

Performance criteria

2.1 Processes for clearing fault indicators before power supply restoration are explained.

Range may include but is not limited to – relay flags, fault indicators, SCADA indications; evidence of two is required.

2.2 Processes for restoration of electricity supply are explained in accordance with SM-EI and network asset owner’s operating standards.

Range may include but is not limited to – network plant and equipment, customer; evidence of two is required.

Outcome 3

Explain the information required for fault report documentation.

Performance criteria

3.1 Work carried out for fault repair and power supply restoration is explained.

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

3.2 Risk of further trips or faults is explained.

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

3.3 Reasons for maintenance required on network plant and equipment are explained.

Range may include but is not limited to – equipment defects, environment concerns, pollution impact on equipment, condition monitoring required; evidence of two is required.

Replacement information	This unit standard replaced unit standard 16278.
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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	20 March 2014	31 December 2021
Review	2	28 November 2019	N/A
Rollover and Revision	3	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.