National Certificate in Electricity Supply (Power Technician) (Level 5) with an optional strand in Generation and Sustainable Energy

Level **5**

Credits **158**

This qualification has been **reviewed**. The last date to meet the requirements is 31 December 2019.

Transition Arrangements

This qualification has been reviewed and replaced by the New Zealand Certificate in Electricity Supply (Power Technician) (Level 5) with optional strands in Communications, Generation, Metering, and Transmission and Distribution [Ref: 3535].

The last date for entry into programmes leading to this qualification is 31 December 2017.

People may either complete the qualification requirements by 31 December 2019 or transfer to a programme leading to the replacement qualification.

For detailed information see Review Summaries on the NZQA website.

NQF Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	October 2006	December 2008
Revision	2	April 2007	December 2013
Review	3	February 2011	December 2019
Revision	4	August 2013	December 2019
Review	5	November 2016	December 2019

Standard Setting Body

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National Certificate in Electricity Supply (Power Technician) (Level 5) with an optional strand in Generation and Sustainable Energy

Level **5**

Credits **158**

Purpose

This National Certificate is awarded to people who have demonstrated competence in the skills and knowledge required for employment as power technicians in the electricity supply industry.

It caters for trainees within this industry whose primary role is carrying out acceptance, installation, commissioning, and maintenance testing of primary and secondary equipment installed on an electricity supply system. The qualification comprises only compulsory standards as all of the knowledge and skills required for power technicians is essential to competent performance of the role.

The compulsory section recognises competence in working with the following equipment and systems: battery banks and charge systems, multiple input protection systems, power and instrument transformers, high voltage power cables, and ancillary service (AC and DC) and uninterrupted power supply supplies, high voltage circuit breakers, single input protection relays, and test instruments.

In addition, the optional strand in Generation and Sustainable Energy recognises skills and knowledge required to:

- describe and apply electricity power generation technology
- maintain and modify distributed control systems to control electricity supply plant operations
- utilise a Distributed Control System (DCS) in the operation of an electricity generation power station.

This qualification builds on the knowledge and skills recognised by the National Certificate in Electricity Supply (Electrical) (Level 3) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1294] and the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295]. It can lead to the New Zealand Diploma in Engineering [Ref: 112950], developed by the New Zealand Board for Engineering Diplomas.

Special Notes

Prerequisite: the National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295] or demonstrate equivalent knowledge and skills.

Credit Range

	Compulsory	Generation and Sustainable Energy optional strand
Level 3 credits	20	-
Level 4 credits	77	-
Level 5 or above credits	61	36
Minimum totals	158	36
Total with strand	194	

Requirements for Award of Qualification

Award of NZQF National Qualifications

Credit gained for a standard may be used only once to meet the requirements of this qualification.

Unit standards and achievement standards that are equivalent in outcome are mutually exclusive for the purpose of award. The table of mutually exclusive standards is provided on the New Zealand Qualifications Authority (NZQA) website: http://www.nzqa.govt.nz/qualifications-standards/standards/standards-exclusion-list/.

Reviewed standards that continue to recognise the same overall outcome are registered as new versions and retain their identification number (ID). Any version of a standard with the same ID may be used to meet qualification requirements that list the ID and/or that specify the past or current classification of the standard.

Summary of Requirements

- Compulsory standards

The following strand is optional

- Generation and Sustainable Energy Optional Strand

Detailed Requirements

Compulsory
The following standards are required

Engineering and Technology > Electrical Engineering > Core Electrical

ID	Title	Level	Credit
22722	Demonstrate and apply introductory knowledge of electrical circuit engineering principles	4	15
22723	Demonstrate and apply intermediate knowledge of the elements of power engineering	5	15
22724	Demonstrate and apply knowledge of electrical machines	5	15

Engineering and Technology > Electrical Engineering > Electrotechnology

ID	Title	Level	Credit
16992	Describe and apply knowledge of electrotechnology fault-diagnosis procedures	4	5

ID	Title	Level	Credit
22734	Demonstrate and apply introductory knowledge of electrotechnology engineering mathematics	4	15

Engineering and Technology > Electricity Supply > Electricity Supply - Power System Maintenance

ID	Title	Level	Credit
26019	Demonstrate knowledge of introductory concepts in power system protection	4	10
26020	Demonstrate knowledge of intermediate concepts in power system protection	5	10

Engineering and Technology > Electricity Supply > Electricity Supply - Testing

ID	Title	Level	Credit
14271	Carry out acceptance, commissioning and maintenance tests on power transformers	4	6
14272	Carry out maintenance and/or acceptance tests on high voltage circuit breakers	4	6
14273	Carry out maintenance and commissioning tests on instrument transformers	4	5
14274	Carry out electrical tests on high voltage bus connected equipment	3	4
14276	Carry out maintenance and/or commissioning tests on high voltage power cables and terminations	3	4
14285	Carry out tests on uninterrupted power supply supplies	3	4
14287	Use and maintain test instruments used within the high voltage electrical industry	3	4
14288	Carry out tests on battery banks and charge systems	3	4
14297	Carry out commissioning and maintenance tests on single and multiple input protection systems	5	6

Engineering and Technology > Electronic Engineering > Core Electronics

ID	Title	Level	Credit
22726	Demonstrate and apply introductory knowledge of electronic engineering	4	15
22727	Demonstrate and apply intermediate knowledge of programmable logic controller engineering applications	5	15

Generation and Sustainable Energy Optional Strand
The following standards are required

Engineering and Technology > Electricity Supply > Electricity Supply - Power System Management

ID	Title	Level	Credit
11577	Describe and apply electricity power generation, renewable and sustainable energy, and conservation technologies	6	15
19326	Maintain and modify distributed control systems to control electricity supply plant operations	5	15
23409	Utilise a Distributed Control System (DCS) in the operation of an electricity generation power station	5	6

Transition Arrangements

Version 4

This qualification was revised and issued as version 4 to remove expiring unit standard 14280 and include reverse transition for versions 2 and 3.

Changes to structure and content
- Overall credits reduced from 162 to 158.
- Expiring standard 14280 was removed.

For detailed information see Review Summaries on the NZQA website.

All existing candidates may either complete the version of the qualification on which they are enrolled or transfer their existing achievements to version 4. All new trainees will be enrolled in programmes leading to version 4 of the qualification.

This version of the qualification contains standards that have replaced or been substituted for an earlier standard. For the purposes of this qualification, people who have gained credit for the expiring standard are exempt from the requirement to gain credit for the substitute or replacement standard – see table below.

Credit for	Exempt from
11564	22724
11565	22723
11579	22727
14280	14297
21230	26020

Reverse transition

Version 2 of this qualification contains standards that have been substituted for or replaced earlier standards. For the purposes of this qualification, people who have gained credit for the replacement standards are exempt from the requirement to gain credit for the expiring standards – see table below.

Credit for	Exempt from
26019	19481
26020	21230

It is not intended that anyone is disadvantaged by this revision and the above arrangements have been designed for a smooth transition. Anyone who feels they have been disadvantaged may appeal to ESITO at the address below.

Previous versions of the qualification

Version 3 was issued following a review to allow a better progression to the New Zealand Diploma in Engineering [Ref: 112950], and recognise recent changes to the role of the Power Technician within the Electricity Supply industry. An optional strand was added to recognise the distinct skill set required of power technicians working within the generation and sustainable energy sector. Changes to structure and content included total credits increasing and the structure of the qualification changing from a compulsory set and an elective set to a compulsory set with an optional strand.

Version 2 was issued following the ElectroTechnology Industry Training Organisation (ETITO) review of Core Electronics standards, which resulted in the replacement of standard 11579 with standard 22729. However, the Electricity Supply Industry Training Organisation deemed standard 22727 a more appropriate replacement standard in relation to the ability of the candidate undertaking the qualification, and the qualification was revised accordingly.

Other standard setting bodies whose standards are included in the qualification

ElectroTechnology Industry Training Organisation

Certification

This certificate will display the logos of NZQA, the Electricity Supply Industry Training Organisation and the organisation that has been granted consent to assess against standards that meet the requirements of the qualification (accredited).

Classification

This qualification is classified according to the classification system listed on the Directory of Assessment Standards (DAS) and the New Zealand Standard Classification of Education (NZSCED) system as specified below.

DAS Classification		**NZSCED**	
Code	**Description**	**Code**	**Description**
318	Engineering and Technology > Electricity Supply	031313	Engineering and Related Technologies > Electrical and Electronic Engineering and Technology > Electrical Fitting, Electrical Mechanics

Quality Management Systems
Providers and Industry Training Organisations must be granted consent to assess by a recognised Quality Assurance Body before they can register credits from assessment against standards. Organisation with consent to assess and Industry Training Organisations assessing against standards must engage with the moderation system that applies to those standards. Consent to assess requirements and the moderation system are outlined in the associated Consent and Moderation Requirements (CMR) for each standard.