



National Certificate in Electricity Supply (Field Switcher) (Level 4) with optional strands in Distribution Networks, Transmission Networks, and Operational and Co-ordination Planning

Level	4
Credits	86

Purpose

This national certificate is awarded to people who have demonstrated competence in the skills and knowledge required for employment in the Electricity Supply Industry as a Field Switcher. It provides entry into the National Diploma in Electricity Supply (Level 5) [Ref: 0674]. The compulsory section covers those core skills required by all Field Switchers while the elective section provides flexibility to select standards which cover skills required in specific fields of employment. Optional strands cover additional skills required by those working in the distribution or transmission networks sector, or who undertake operational and co-ordination planning.

This qualification provides a pathway for those electricians, mechanical engineers, or line mechanics whose primary role is carrying out switching and electrical isolations in the field of power system plant and equipment.

Holders of the qualification will be able to:

- Apply earths to and remove earths from electrical conductors, plant and equipment.
- Remove electricity supply field network equipment from service for access to work.
- Demonstrate knowledge of electricity transmission networks, single and three phase transformers, electrical testing, and use test instruments.
- Carry out switching operations on metal clad switchgear.
- Read and interpret single line diagrams.
- Develop and action an operating sequence in the electricity supply industry.
- Carry out in-service visual inspections on sub station equipment and auxiliary plant.
- Apply and remove safety measures in an electricity supply environment.
- Respond to sub station secondary systems alarms and indications.
- Maintain and update operating log for electricity supply operational purposes.

Special Notes

Prerequisite: one of the following

- National Certificate in Electrical Engineering (Electrician for Registration) (Level 4) [Ref: 1195]

- National Certificate in Electricity Supply (Electrical) (Level 4) with strands in Electricity Supply Electrician, Electrical Fitter, and Electrical Technician [Ref: 1295]
- National Certificate in Mechanical Engineering (Level 4) with strands in Fitting and Machining, General Engineering, Machining, Maintenance Engineering, Toolmaking, and Electricity Supply [Ref: 1262]
- National Certificate in Electricity Supply (Line Mechanic Distribution) (Level 4) [Ref: 0874], or
- demonstrate equivalent knowledge and skills.

Credit Range

	Compulsory	Elective
Level 2 credits	4	-
Level 3 credits	40	-
Level 4 or above credits	25	17
Minimum totals	69	17
Total	86	

	Distribution Networks Optional Strand
Level 3 credits	14
Total	14
Qualification total with strand	100

	Transmission Networks Optional Strand
Level 4 credits	8
Total	8
Qualification total with strand	94

	Operational and Co-ordination Planning Optional Strand
Level 3 credits	4
Level 4 credits	29
Total	33
Qualification total with strand	119

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
- Elective – A minimum of 17 credits as specified

The following strands are optional

- Distribution Networks Optional Strand
- Transmission Networks Optional Strand
- Operational and Co-ordination Planning Optional Strand

Detailed Requirements

Compulsory

The following standards are required

Engineering and Technology > Electricity Supply > Electricity Supply - Core Skills

ID	Title	Level	Credit
12296	Apply earths to and remove earths from electrical conductors, plant and equipment	3	2
12387	Operate electrical switchgear in the electricity supply industry	4	6
16283	Remove electricity supply field network equipment from service for access to work	4	8
17027	Demonstrate the requirements for holding access permits on high voltage electrical lines	3	2
17028	Demonstrate the requirements for holding permits on high voltage electrical equipment	3	2
18028	Demonstrate knowledge of earthing in high voltage (HV) electricity network installations and works	3	2
19323	Demonstrate knowledge of single and three phase transformers used in the electricity supply industry	3	4
19950	Use test instruments and carry out electrical testing in the electricity supply industry	3	3
20090	Carry out switching operations on metal clad switchgear	4	3
20091	Read and interpret single line diagrams in the electricity supply industry	3	3
20092	Demonstrate knowledge of electricity transmission and distribution plant and equipment	2	4
20093	Develop and action an operating sequence in the electricity supply industry	4	4
20095	Respond to substation secondary systems alarms and indications in the electricity supply industry	4	4

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

ID	Title	Level	Credit
14328	Carry out in-service visual inspections on substation equipment for safe operation	3	4
14331	Carry out in-service visual inspection checks on substation auxiliary plant and equipment	3	4
14700	Apply and remove safety measures in an electricity supply environment	3	3

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

ID	Title	Level	Credit
16281	Maintain and update operating log for electricity supply operational purposes	3	3

Engineering and Technology > Electricity Supply > Electricity Supply - Testing

ID	Title	Level	Credit
14287	Use and maintain test instruments used within the high voltage electrical industry	3	4

Health > Occupational Health and Safety > Occupational Health and Safety Practice

ID	Title	Level	Credit
17602	Apply hazard identification and risk assessment procedures in the workplace	3	4

Elective

A minimum of 17 credits at Level 4 or above
From anywhere on the DAS

Distribution Networks Optional Strand

The following standards are required

Engineering and Technology > Electricity Supply > Electricity Supply - Core Skills

ID	Title	Level	Credit
10509	Climb and work on electricity network structures	3	6

Engineering and Technology > Electricity Supply > Electricity Supply - Distribution Networks

ID	Title	Level	Credit
10526	Operate ground and structure mounted electrical equipment associated with electric lines up to 66kV	3	4
12295	Apply earths to and remove earths from overhead electric line conductors	3	4

Transmission Networks Optional Strand

The following standards are required

Engineering and Technology > Electricity Supply > Electricity Supply - Core Skills

ID	Title	Level	Credit
20094	Receive and return transfer of control in the electricity supply industry	4	4

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

ID	Title	Level	Credit
14701	Manage electricity supply work control systems	4	4

Operational and Co-ordination Planning Optional Strand

The following standards are required

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

ID	Title	Level	Credit
27655	Demonstrate familiarity with common faults, relay systems, and components of diagrams in power system protection systems	3	4

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

ID	Title	Level	Credit
16276	Respond to electricity supply external system operations communications	4	5
16280	Compile and action switching plans to maintain electricity supply power network security	4	9
16285	Plan for scheduled work on electricity supply power system equipment	4	10
19477	Demonstrate knowledge of the national electricity grid	4	5

Transition Arrangements

Version 4

Version 4 was issued to replace expired standard 19324 and expiring standard 19481.

Changes to structure and content

- Elective requirement was reduced from 21 to 17 credits.
- Expired standard 19324 was removed from the compulsory set and standard 12387 was substituted for it.
- Expiring standard 19481 was removed from the Operational and Co-ordination Planning Optional Strand and standard 27655 was substituted for it.

For detailed information see [Review Summaries](#) on the NZQA website.

All existing candidates may either complete version 3 of the qualification or transfer their existing achievements to version 4. All new trainees will be enrolled in programmes leading to version 4 of the qualification.

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

Credit for	Exempt from
19324	12387
19481	27655

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

Previous versions of the qualification

Version 3 was issued in order to recognise the specific skill sets required by those working in the distribution or transmission networks sector, or who undertake operational and co-ordination planning. An elective requirement was also added to ensure the qualification met the requirements of a Level 4 certificate.

Version 2 was issued in order to correctly show the number of Level 4 credits contained within the qualification.

NZQF National Qualification Registration Information

Process	Version	Date	Last Date for Assessment
Registration	1	September 2004	January 2010
Revision	2	December 2004	January 2010
Review	3	January 2010	N/A
Republished	3	August 2012	N/A
Revision	4	August 2013	N/A

Standard Setting Body

Electricity Supply Industry Training Organisation
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Telephone 07 834 3038

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Email info@esito.org.nz

Planned Review

Any person or organisation may contribute to the review of this qualification by sending feedback to the standard setting body at the above address.

Next Review	2013
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Other standard setting bodies whose standards are included in the qualification

New Zealand Industry Training Organisation

Certification

This certificate will display the logo 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.

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.

NQF 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.