Title	**Demonstrate knowledge of electrical systems in a wind turbine**		
Level	**3**	**Credits**	**5**

Purpose	People who achieve this unit standard will be able to demonstrate knowledge of electrical systems in a wind turbine.

Classification	Electricity Supply > Electricity Supply - Power System Maintenance

Available grade	Achieved

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 the current version of the 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* (2015) available from www.eea.co.nz.

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.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of electrical systems in a wind turbine.

Performance criteria

1.1 The basic principles of electricity are explained in terms of electrons, conductors, and insulators.

1.2 Generators used in a wind farm are described in terms of their basic principles and function.

Range includes – rotor, stator, induction, reactance, phase, power factor, slip rings, brushes.

1.3 Transformers used in a wind farm are described in terms of their basic principles and function.

Range includes – voltage transformers, current transformers, isolating transformers, rectifiers.

1.4 Sensors used in a wind farm are described in terms of their different types and functions.

Range includes – wind speed and direction sensors, temperature sensors, rotational speed sensors, yaw and cable twist sensors, vibration sensors.

1.5 Converters used in a wind farm are described in terms of their different types and functions.

Range includes – AC to DC, DC to AC, frequency control, power factor correction, phase balancing, filtering.

1.6 Filters used in a wind farm are described in terms of their different types and functions.

Range includes – reactors, capacitors, harmonic frequency.

1.7 Switching and protection systems used in a wind farm are described in terms of their different types and functions.

Range includes – single or 3-phase switches, relays, contactors, fuses, circuit breakers, residual current devices, uninterruptible power supply.

1.8 An electrical diagram of a wind turbine is interpreted, and its components are identified.

Planned review date	31 December 2026

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	29 April 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.