Title	**Diagnose and repair faults in mechanical and hydraulic systems used in wind turbines**		
Level	**4**	**Credits**	**20**

Purpose	People credited with this unit standard are able to diagnose and repair faults in mechanical and hydraulic systems used in wind turbines.

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

Diagnose and repair faults in a mechanical system used in wind turbines.

Range systems include – gearboxes, turbines, pitch systems, yaw systems, drive train, couplings, lubrication systems, cooling systems;
evidence of diagnosis and repair of a fault in four different mechanical systems is required.

Performance criteria

1.1 The wind turbine is removed from service and full system safety is established.

Range may include – isolation, depressurisation, mechanical interlocks.

1.2 Visible and audible defects are identified.

Range cracks, deformation, fretting, corrosion, vibration, noise, misalignment, leaks.

1.3 Grease samples are taken.

1.4 Faults in a wind turbine mechanical system are diagnosed.

Range performance test, alignment, torque values.

1.5 Faults in the mechanical system are repaired or faulty parts are replaced, and any misalignment is corrected.

1.6 Mechanical system is tested.

1.7 Results of the fault diagnosis, repair or replacement, and tests are recorded.

1.8 The wind turbine is returned to service.

Outcome 2

Diagnose and repair faults in a hydraulic system used in wind turbines.

Range systems include – pumps, actuators, valves, accumulators, sensors; evidence of diagnosis and repair of a fault in two hydraulic systems is required.

Performance criteria

2.1 Faults in a wind turbine hydraulic system are diagnosed.

Range flow test, pressure test, performance test, leaks.

2.2 Oil is sampled.

Range hydraulic oil, gear oil.

2.3 Faults in the hydraulic system are repaired or faulty parts are replaced.

2.4 Hydraulic system is tested.

2.5 Results of the fault diagnosis, repair or replacement, and tests are recorded.

2.6 The wind turbine is returned to service.

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 qualifications@connexis.org.nz if you wish to suggest changes to the content of this unit standard.