



REGISTERED NATIONAL STANDARD

UNIT OF COMPETENCY

Title:	Use drawings, diagrams, schedules, standards, codes and specifications for hybrid-wind systems <u>Note:</u> 1) Due to safety issues inherent in working with combustible substances, all training and assessment activities must be in accordance with local industry and regulatory requirements; 2) This unit of competency has been adapted from the Pacific regional unit standard SE3303 (B) <i>Use drawings, diagrams, schedules, standards, codes and specifications</i>		
TQF Level:	3	Credits:	4
Version:	1		
National standard code:	NS095-03		
Associated qualification (and code):	National Certificate in Sustainable Energy (Hybrid-wind) Level 3 (QR-03-NQ-018-04-0504-23-01)		
Approval date:	27 April 2023	Review date:	27 April 2028
Purpose:	<p>This unit standard involves working with hybrid-wind system. It encompasses the rudiments for communicating with schematic, wiring and mechanical diagrams and equipment and cable/piping connection schedules, manuals, site and architectural drawings and plans showing the location of services, apparatus, plant and machinery and understanding the use and format of compliance standards and job specifications.</p> <p>Unless required by law, the application of the skills and knowledge described in this unit does not require a license to practice in the workplace.</p> <p>Persons credited with this unit standard are able to:</p> <ol style="list-style-type: none"> 1. Prepare to use drawings, diagrams, schedules and manuals for the design and installation of Hybrid-wind systems; 2. Use drawings, diagrams, schedules and manuals to obtain Hybrid-wind system job information; 3. Use Hybrid-wind systems drawings, diagrams, schedules and manuals to convey information and ideas; 4. Prepare to use compliance standards, codes and specifications for Hybrid-wind systems. 		

Learning Outcome 1 (LO1)	Prepare to use drawings, diagrams, schedules and manuals for hybrid-wind design and installations.
Performance standards	<ol style="list-style-type: none"> 1.1. Identify and adhere to established <i>Occupational, health and safety</i> (OHS) risk control measures and procedures. 1.2. Determine the need for drawings, diagrams, schedules or manuals for hybrid-wind system work to be undertaken. 1.3. Identify and adhere to established routines and procedures to obtain drawings, diagrams, schedules or manuals required for the hybrid wind system work to be undertaken. 1.4. Identify and resolve any uneasiness due to customs and taboos to ensure it does not become a constraint to the feasibility of a hybrid-wind system design.
Learning Outcome 2 (LO2)	Use drawings, diagrams, schedules and manuals to obtain hybrid-wind job information.
Performance Standards	<ol style="list-style-type: none"> 2.1 Select drawings, diagrams, schedules and/or manuals, appropriate to the hybrid-wind system work being undertaken. 2.2 Interpret hybrid-wind system drawings, diagrams and schedules using knowledge of drawing layouts, conventions and symbols. 2.3 Extract dimensions from drawings and diagrams for application to hybrid-wind system work undertaken. 2.4 Determine location of hybrid-wind system equipment from equipment schedules and location diagrams. 2.5 Review manuals to ascertain their format and where information relevant to the hybrid-wind system work to be undertaken is located. 2.6 Interpret information given in manuals in relation to the hybrid-wind system work to be undertaken.
Learning Outcome 3 (LO3)	Use hybrid-wind system drawings, diagrams, schedules and manuals to convey information and ideas.
Performance standards	<ol style="list-style-type: none"> 3.1 Identify clearly all drawing scales from relevant documentation; 3.2 Neatly make freehand drawings, using drawing conventions, to convey information and ideas to others involved in the hybrid-wind system work; 3.3 Neatly correct errors to original freehand hybrid-wind system job drawing, in accordance with drawing conventions, to show final 'as-installed' arrangement; 3.4 Submit corrected hybrid-wind system drawings to appropriate person(s) in accordance with established procedures;

Learning Outcome 4 (LO4)	Prepare to use <i>compliance standards, codes and specifications</i>
Performance standards	<p>4.1. Describe orally or in writing what <i>compliance standards, codes, and specifications</i> are;</p> <p>4.2. Identify and obtain compliance standards, codes, and specifications that apply to hybrid-wind system works;</p> <p>4.3. Describe the format of compliance standards and codes that apply to hybrid-wind systems;</p> <p>4.4. Review the format of compliance standards and codes that apply to hybrid-wind system disciplines;</p> <p>4.5. Describe the purpose and format and typical content of job specifications within the hybrid wind system;</p> <p>4.6. Review the purpose and typical content of job specifications in PS 4.5 in light of compliance standards and codes.</p>
Pre-requisites	N/A
Co-requisites	N/A
Underpinning skill and knowledge	<p>The following knowledge and skill underpin this unit standard;</p> <ul style="list-style-type: none"> • Knowledge of basic operation of a Hybrid-wind system • Knowledge of basic civil works involved in Hybrid-wind system installation and operation; • Knowledge of reading and interpreting technical diagrams of Hybrid-wind designs and layouts; • Knowledge of the environmental and social impacts of Hybrid-development • Knowledge of <i>compliance standards, codes, and specifications</i> relevant to hybrid-wind systems
Assessment requirements	<p><u>Methods of assessment:</u></p> <p>A range of assessment methods should be used to assess students' knowledge and application of skills. These include but not restricted to the following:</p> <ol style="list-style-type: none"> a) Direct observation of students performing certain tasks stated under context of assessment b) Oral questions to test relevant skills and knowledge during observation (e.g. Interviews) c) Written assessment such as: <ol style="list-style-type: none"> 1) Pen and paper tests and exams; 2) Reports on specific projects- e.g. designing and installation or service jobs; 3) Student portfolios – containing other activities that demonstrate

what a student can do – e.g. annotated photographs, video records, completed Activity logs, marked quizzes and assignments, etc., etc.

- 4) Reviews of workplace attachment reports (e.g. Supervisor/third party reports; testimonials from Project manager or supervisor)

Context of assessment:

To support student assessment and to ensure they are valid, reliable, flexible, and fair, provider institutions are encouraged to make the necessary arrangements to involve the relevant key industry organisations such as *Tonga Electricity Commission* (TEC), *Tonga Power Limited* (TPL) and other trusted licensed private energy and electricity entrepreneurs in the assessment of the required competencies. Such collaboration between provider institutions and the industry may include but not restricted to the following:

- Experts from the industry have input to the design and implementation of the curriculum and assessment activities;
- Experts from the industry are engaged as trainers, assessors, or assessment moderators;
- Students are placed in relevant industry organisations for workplace attachment;
- Industry experts act as supervisors of students on workplace attachment.
- Etc.

To show that students have the required competence they will need to demonstrate skills and apply knowledge in the workplace (or in an environment that closely resembles the workplace) in relation to the unit's learning outcomes:

- a) LO1: Prepare to use drawings, diagrams, schedules and manuals for hybrid-wind design and installations.
- b) LO2: Use drawings, diagrams, schedules and manuals to obtain hybrid-wind job information.
- c) LO3: Use hybrid-wind system drawings, diagrams, schedules and manuals to convey information and ideas.
- d) LO4: Prepare to use compliance standards, codes and specifications.

Re-assessment

Candidates of assessment are eligible to three (3) attempts to achieve the required competency within 14 days of their first attempt:

1. Feedback must be provided to the candidate and sufficient time provided to prepare for re-assessment.
2. The trainer/assessor has the discretion to vary the assessment tasks used in

	<p>each assessment attempt as long as the:</p> <ol style="list-style-type: none"> a) same competencies are being assessed; b) principles of assessment are adhered to. <p>Failure to achieve the required competency after three (3) attempts on the exam or specific part of the assessment will require the person studying this Unit to re-enrol for the same Unit.</p>
<p>Resource requirements</p>	<ol style="list-style-type: none"> 1. Text Books or printed resources for Renewable Energy technology designs, standards, codes and specification (Hybrid Wind) at the discretion of the course/unit coordinator or trainer, 2. Student computers with internet access; 3. Conventional classroom furniture and resources: White/blackboard, tables or benches, chairs, student notice boards; 4. Resources on technical drawings, diagrams, standards, codes and specs (Hybrid-wind System) 5. Computer-aided design software, <i>AutoCAD</i> installed in all student computers.
<p>Moderation arrangements</p>	<ol style="list-style-type: none"> 1. Training providers must have their own moderation system approved by TNQAB before accreditation is granted; <ol style="list-style-type: none"> a) Relevant internal moderation processes are documented; b) Assessment is planned for each unit, and moderation processes are integrated into such plan 2. External moderation is conducted by the national qualifications unit of TNQAB for all unit components of national qualifications; <ol style="list-style-type: none"> a) Samples of assessed activities are submitted for moderation; b) Moderation (external) forms are available on request from the National qualifications unit of TNQAB.
<p>Requirements to complete this unit</p>	<p>There are four (4) Learning outcomes and twenty (20) Performance standards to measure competence.</p> <p>To satisfy the competency requirement, the person studying this unit is:</p> <ol style="list-style-type: none"> 1. Require to demonstrate ALL learning outcomes to the expected standards of performance; 2. Required to attain an <i>Achieved</i> Grade (Competent) to fulfil the requirements of the Unit Standard. 3. Eligible to three (3) attempts to achieve the required competency

within 14 days of the first attempt.

Failure to achieve the required competency level after three (3) attempts of the exam or specific part of the assessment will require the person studying this Unit to re-enrol for the same Unit.

Important notes and definitions

Notes:

1. All activities associated with this unit standard must comply with the requirements of national codes of practice, regulations and legislation for workplace health, safety, and environmental protection and any subsequent amendments.
2. Unless required by law, the application of the skills and knowledge described in this unit does not require a license to practice in the workplace.
3. Work presupposes compliance with gas, electrical, environmental and occupational safety requirements;
4. In the event that relevant legislations, standards and codes are not available locally, training providers are encouraged to use those which are currently used in either Australia or New Zealand for their training.

Definitions:

1. *Civil works* – refers to any work where the greater proportion involves earthworks in the construction of bridges, dams and the like, but excluding works involving the construction of a building, electrical and mechanical plant.
2. *Compliance code* – is not a law but a 'set of rules' that must be followed. Each code specifies the minimum acceptable requirements for a process or performance. Codes exist for the purpose of safety, quality or other benefit. For example, electrical codes exist to ensure system reliability and that building occupants are safe from shock risks. Even though a code is not a law, it can be adopted into a law or included in a business contract.
3. *Compliance* refers to the act of following set rules and guidelines;
4. *Compliance standard* – a statement that describes acceptable level of quality which must be followed; a compliance standard tends to be more detailed elaboration, providing the 'nuts and bolts' of meeting a compliance code. A code tells you what you need to do, and a standard tells you how to do it.
5. *Specification* - a specification provides specific requirements for a product or service used in an application. Unlike a **code** or **standard**, which can apply

	<p>broadly to an industry and region, specifications outline the requirements of a specific company or product. Sometimes, a specification will also dictate a standard installation or design layout of those components.</p> <p>6. <i>Technical standards</i> refers to a common reference or benchmark that specifies performance within an industry.</p>
<p>Public comments on unit</p>	<p>Please contact TNQAB National Qualifications Unit (email EnquireNQ@tnqab.to or Telephone 28136) if you like to discuss or suggest changes to the details of this unit.</p>