

22695VIC

Certificate III in Renewable Energy Industry Pathways

Version 1: May 2025

**This course has been accredited under Part 4.4 of the
Education and Training Act 2006.**

Accredited for the period: 1 January 2026 to 31 December 2030



Version History		Date
Version 1	Initial release	01 January 2026

Section A – Copyright and course classification information

1. Copyright owner of the course	<p>Copyright of this material is reserved to the Crown in the right of the State of Victoria on behalf of the Department of Jobs, Skills, Industry and Regions (DJSIR) Victoria.</p> <p>© State of Victoria (DJSIR) 2025</p>		
2. Address	<p>Executive Director</p> <p>Deputy CEO Victorian Skills Authority Department of Jobs Skills, Industry and Regions (DJSIR) GPO Box 4509 Melbourne Vic 3001</p> <p>Organisational Contact:</p> <p>Manager, Training and Learning Products Unit Engagement Branch Victorian Skills Authority Telephone: 131 823 Email: course.enquiry@djsir.vic.gov.au</p> <p>Day-to-day contact:</p> <p>Curriculum Maintenance Manager (CMM) Business Industries Chisholm Institute PO Box 684 Dandenong Vic 3175 Telephone: (03) 9238 8501 Email: CMMBusinessIndustries@chisholm.edu.au</p>		
3. Type of submission	<input checked="" type="checkbox"/>	Accreditation	
	<input type="checkbox"/>	Reaccreditation	Specify course code and title
4. Copyright acknowledgement	<p>The following units of competency:</p> <p>AHCAGB406 Keep financial records for primary production business</p> <p>AHCBUS407 Cost a project</p> <p>AHCECR201 Capture digital media for fieldwork</p> <p>AHCECR309 Conduct an ecological and cultural site inspection prior to works</p> <p>AHCLSC311 Set out site for construction works</p> <p>AHCPER324 Establish a permaculture system</p> <p>AHCSAW202 Recognise landforms and soil types</p>		

AHCSOL406 Sample soils and interpret results

AHCWRK317 Coordinate work site activities

have been imported from the AHC Agriculture, Horticulture and Conservation and Land Management training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following units of competency:

BSBCRT412 Articulate, present and debate ideas

BSBESB302 Develop and present business proposals

BSBESB401 Research and develop business plans

BSBOPS302 Identify business risk

BSBPMG427 Apply project procurement procedures

BSBPMG429 Apply project stakeholder engagement techniques

BSBPMG430 Undertake project work

BSBSUS411 Implement and monitor environmentally sustainable work practices

BSBWHS311 Assist with maintaining workplace safety

has been imported from the BSB Business Services training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following unit of competency:

CPCWHS1001 Prepare to work safely in the construction industry

has been imported from the CPC Construction, Plumbing and Services training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following units of competency:

CPPSSI3011 Produce basic maps

CPPSSI3015 Collect basic surveying data

CPPSSI3019 Produce basic plans of surveys

CPPSSI4035 Apply GIS software to spatial problems

have been imported from the CPP Property Services training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following unit of competency:

ICPPTD302 Set up and produce 3D prints

has been imported from the ICP Printing and Graphic Arts training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following units of competency:

MEM09201 Work effectively in an engineering drafting workplace

MEM09229 Read and interpret technical engineering drawings

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

MEM16008 Interact with computing technology

MEM30012 Apply mathematical techniques in a manufacturing engineering or related environment

MEM30016 Assist in the analysis of a supply chain

MEM30019 Use resource planning software systems in manufacturing

MEM30031 Operate computer-aided design (CAD) system to produce basic drawing elements

have been imported from the MEM Manufacturing and Engineering training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following unit of competency:

LGACOR007 Conduct community consultations

has been imported from the LGA Local Government training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following units of competency:

MSL924005 Process and interpret data

MSL973024 Perform site investigation activities

MSL974018 Conduct geotechnical site investigations

have been imported from the MSL Laboratory Operations training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following unit of competency:

MSS024032 Document simple geological information for a site

has been imported from the MSS Sustainability training package

administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following unit of competency:

PUACOM012 Liaise with media at a local level

has been imported from the PUA Public Safety training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following unit of competency:

RIIENV201E Identify and assess environmental and heritage concerns

has been imported from the RII Resources and Infrastructure Industry training package administered by the Commonwealth of Australia.

© Commonwealth of Australia

The following unit of competency:

VU23138 Identify appropriate data sources and storage needs

has been imported from 22589VIC Certificate III in Emerging Technologies.

Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Jobs, Skills, Industry and Regions 2022).

This work is licensed under a Creative Commons Attribution-No Derivatives 4.0 International licence (see [Creative Commons](#) for more information).

The following units of competency:

VU23679 Apply organisational data policies

VU23680 Apply basic statistical methods for data analytics

VU23684 Select and use industry data analytics tools

have been imported from 22669VIC Certificate IV in Data Foundations.

Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Jobs, Skills, Industry and Regions 2022).

This work is licensed under a Creative Commons Attribution-No Derivatives 4.0 International licence (see [Creative Commons](#) for more information).

The following units of competency:



	<p>VU23894 Research and report on the relationship between energy, sustainability and climate</p> <p>VU23897 Research and report on energy storage systems suitable for renewable energy</p> <p>have been imported from 22696VIC Certificate II in Renewable Energy Technologies and Applications.</p> <p>Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Jobs, Skills, Industry and Regions 2025).</p> <p>This work is licensed under a Creative Commons Attribution-No Derivatives 4.0 International licence (see Creative Commons for more information).</p>	
5. Licensing and franchise	<p>Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Jobs, Skills, Industry and Regions) 2025.</p> <p>This work is licensed under a Creative Commons Attribution-No Derivatives 4.0 International licence (see Creative Commons for more information).</p> <p>You are free to re-use the work under the licence, on the condition that you credit the State of Victorian (Department of Jobs, Skills, Industry and Regions), provide a link to the licence, indicating if changes were made, and comply with all other licence terms. You must not distribute modified material.</p> <p>Request for other use should be addressed to:</p> <p>Deputy CEO Victorian Skills Authority Department of Jobs, Skills, Industry and Regions (DJSIR) GPO Box 4509 Melbourne Vic 3001 Email: course.enquiry@djsir.vic.gov.au</p> <p>Copies of this publication can be downloaded free of charge from the Department website.</p>	
6. Course accrediting body	Victorian Registration and Qualifications Authority	
7. AVETMISS information	ANZSCO code	099910 Student
	ASCED code	1299 Other Mixed Field Programmes



	National course code	22695VIC Certificate III in Renewable Energy Industry Pathways
8. Period of accreditation	1st January 2026 to 31 st December 2030	

Section B – Course information

1. Nomenclature	Standard 4.1 and 5.8 AQTF 2021 Standards for Accredited Courses
1.1 Name of the qualification	Certificate III in Renewable Energy Industry Pathways
1.2 Nominal duration of the course	316-666 hours
2. Vocational or educational outcomes	Standard 5.1 AQTF 2021 Standards for Accredited Courses
2.1 Outcome(s) of the course	<p>This course is designed to prepare senior secondary school students for future work in the renewable energy sector in non-trade roles. It enables learners to explore career opportunities in renewable energy, prepare for further education and training in renewable energy careers or gain entry level employment in the renewable energy sector.</p> <p>The course is intended to provide the following vocational and educational outcomes:</p> <ul style="list-style-type: none"> • knowledge of the scope and structure of the renewable energy sector and its role in the transition to a clean economy • knowledge of the relationship between energy, sustainable development and climate systems • the ability to assess the impact of energy use on the climate and the environment. • the ability to apply knowledge of the energy market to the renewable energy industry • knowledge of the scope of career pathways and professional and paraprofessional occupations in renewable energy • the ability to explore the requirements of renewable energy projects in varied contexts to inform career and further educational choices • the ability to develop enterprise and basic technical skills to gain employment in a utility-scale or smaller-scale renewable energy development or enterprise • the ability to follow and apply safe work practices in different renewable energy work contexts • the ability to participate in collaborative teams to produce solutions using current and evolving renewable energy technology applications • the ability to research, plan and design renewable energy systems



- development of transferrable skills including problem solving, systems thinking, teamwork and communication skills.

2.2 Course description

The Certificate III in Renewable Energy Industry Pathways is designed to provide senior secondary school students with exposure to renewable energy across different industries and contexts.

The course is suitable for learners with a commitment to renewable energy who wish to develop awareness of the multi-disciplinary aspects of renewable energy developments, and who wish to undertake further education and training in qualifications leading to professional or paraprofessional roles required in renewable energy.

3. Development of the course

Standards 4.1, 5.1, 5.2, 5.3 and 5.4 AQTF 2021 Standards for Accredited Courses

3.1 Industry, education, legislative, enterprise or community needs

Background on course development

Australia's renewable energy industry, particularly in solar and wind, is experiencing a significant shortfall in qualified personnel. This is forecast to worsen in the next few years. At the same time there are increasing investments in renewable energy projects which are often reliant on imported expertise for technical knowledge and skills.

The nature of renewable energy is multidisciplinary and cross-sectoral in its applications. Many people, including younger people, are concerned about climate and the environment, but lack knowledge of the many career pathways into this field.

As a response to the Victorian Government's election commitment to develop a clean energy pathway for school students, the Victorian Department of Education introduced a 'Clean Energy and Engineering' pathway in its VET Delivered to School Students (VDSS) core offering in 2023 as one of its priority industry areas aligned to skills shortages and forecasted jobs growth. This was part of a broader strategic initiative for secondary schools delivering vocational education programs, following the recommendation from the Firth Review that students, families and providers should be provided with enhanced information and guidance about industry pathways that include indicative subject groupings for particular occupational fields.

In 2024, the VET Unit of the Victorian Curriculum and Assessment Authority (VCAA) was invited to work with the Department of Education to develop a Renewable Energy VCE VET Program to address the needs of industry and learners wanting to pursue a career in renewable energy.

Following extensive research and analysis, alongside broad consultation with industry and education stakeholders, it was decided that two courses were required to address the following considerations:

- The lack of a suitable Certificate II or Certificate III qualification in Renewable Energy meant there was no pathway into a Certificate IV level qualification apart from existing electrician apprenticeship

pathways.

- Industry stakeholders wanted VETDSS courses that led to the variety of trade and non-trade roles available in the Renewable Energy sector. There were no suitable units in either trade or the non-trade qualifications, therefore it was an appropriate strategy to address these gaps by developing two courses.

Although the courses were developed to address the same project brief, each course has a distinct focus, set of outcomes and target cohort resulting in the following two courses for inclusion in the Renewable Energy VCE VET program:

- Certificate II in Renewable Energy Technologies and Applications
- Certificate III in Renewable Energy Industry Pathways (this course)

Development of this Certificate III level qualification aimed to bridge the existing gap in renewable energy qualifications and provide a pathway into further education and training in the many non-trade occupations needed by industry in renewable energy.

It also allows senior secondary school students to gain skills and knowledge in renewable energy across a range of industry areas and contexts, whilst receiving credit for their senior secondary certificate in Victoria.

Industry / educational need

State and Federal Governments have set targets to cut Australia's greenhouse gas emissions (GGEs) and achieve net zero. Reaching these targets requires a substantial workforce transformation. Australia needs to consider the full range of levers available, across education and training, migration, procurement and workplace relations systems to ensure a sustainable, equitable path towards net zero.¹

Victoria has already cut emissions by more than any other Australian state, tripled the amount of renewable energy and created thousands of jobs with almost 30 per cent of Australia's renewable energy jobs Victorian based. As the industry expands, the demand for skilled energy workers will only increase. This presents huge opportunities for Victorians to reskill, upskill and move into new sectors where their qualifications are highly sought after.²

The Victorian Skills Plan states that conservative estimates expect around 10,000 additional Victorian jobs per year from now until 2030 as a result of investments in renewables. To work towards skilling for a net zero future, training products should aim to create more base skills for workers so they can transfer more easily across critical roles... and

¹ The Clean Energy Generation: Workforce needs for a net zero economy, Jobs and Skills Australia, <https://www.jobsandskills.gov.au/publications/the-clean-energy-generation>

² The Clean Economy Workforce Development Strategy 2023-2033, Department of Jobs, Skills, Industry and Regions, <https://www.vic.gov.au/clean-economy-workforce-development-strategy-2023-2033>

establish new qualifications and courses to rapidly build the necessary skills.³

From a secondary school education perspective, there is a clear need to continue to encourage pathways in strong numbers into the trades, but also to capitalise on student interest and a desire amongst young learners to develop wider transferrable skills in areas of business, social license, project management and the science that underpins renewable energy. This will allow for greater flexibility, progression and movement between roles across the industry.

In addition, preliminary research and a review of broader school curriculum and programs across senior school identified a vocational education gap between climate change content (covered in the F-10 Curriculum) or the renewable energy programs offered in Tech Schools, and post-secondary Certificate IV and Diploma level qualifications in renewable energy and micro-credentials or short courses aimed at upskilling the existing trade workforce. Entry-level courses must be able to optimise learners' ability to build practical, hands-on skills but also their ability to develop broad, transferable and technical skills that can be used in a range of occupations. This will ensure that learners gain an understanding of a breadth of industries and job roles, including the jobs of the future as technology advances.

Target group

The primary target group is learners undertaking VET Delivered to Secondary Students (VETDSS). A potential secondary target group may comprise post-school learners and early school leavers seeking to develop skills and knowledge in preparation for further study.

The course is expected to attract strong demand from young learners who are concerned about climate change and the environment, but do not have sufficient knowledge of the career pathways and training opportunities that lead into the renewable energy industry.

It is also expected to engage learners at an introductory level, providing industry insight and practical skills that will allow them to transition successfully into further education in professional or paraprofessional roles that are in demand in renewable energy enterprises

This course has been developed by the VCAA, in partnership with the Victorian Department of Education as part of broader initiatives to improve vocational and applied learning pathways in senior secondary schools. It is expected that the increased role of VET in the Victorian Certificate of Education (VCE) and VCE Vocational Major (VCE VM), along with the Department's strategic prioritising of industry areas aligned to skills shortages and forecasted jobs growth such as clean energy, will create additional course demand.

³ Victorian Skills Plan for 2023 into 2024, Victorian Skills Authority, <https://www.vic.gov.au/victorian-skills-plan-2023-publication>
22695VIC Certificate III in Renewable Energy Industry Pathways (Version 1.0)

Course consultation and validation process

Course developers undertook preliminary research on renewable energy and its place within the broader Clean Economy to determine the industry and workforce needs, the skills and knowledge required for key small-scale and utility-scale occupations, and if there were any suitable existing training products to meet these needs at Certificate II or Certificate III level.

Research also reviewed the suitability of training products for school-age learners, possible pathway options for students in conjunction with completing their senior secondary certificate and opportunities for school-based apprenticeships and traineeships (SBATs).

Course developers also consulted broadly with a range of industry and education stakeholders in determining the above, including large-scale energy companies, government agencies and industry regulatory bodies, education representatives, training providers and VET sector stakeholders at both national and state levels

The feedback from these initial consultations:

- reiterated the cross-sectoral nature and multiple applications of renewable energy skills and knowledge across virtually all sectors
- reinforced the prevalence of post-secondary microcredentials and skill sets aimed at upskilling existing tradespeople, and conversely the absence of training products at a Certificate II and III level in fulfilling the needs of young learners (including in a VETDSS context) and providing clear vocational pathways into the renewable energy industry
- recommended substantial hands-on components should be paired with fundamental units around climate change and energy use, systems thinking, battery storage technology and the science that underpins renewable energy
- corroborated the industry workforce demand for traditional tradespeople and that the current trade pathways for students studying Certificate II 'pre-apprenticeship / pre-vocational' qualifications which lead to Certificate III apprenticeships are adequately fulfilling this demand
- revealed that the industry demand for professional and paraprofessional occupations in renewable energy was not being met in existing vocational education and training qualifications
- reinforced the need for new units to be written to address gaps in existing training products and deliver the required outcomes.

Accreditation project steering committee

The development of the Certificate III in Renewable Energy Industry Pathways was overseen by the Project Steering Committee (PSC).

A skills and knowledge profile was developed to guide the outcomes of the course following consultation, feedback and validation from PSC members.

The PSC met formally on four occasions and communicated via email throughout the project to consider and confirm the course skill and knowledge outcomes, course structure and final draft accreditation submission. Stakeholder feedback was incorporated to refine the technical content and assessment requirements of the enterprise units as appropriate.

Course development was guided by the following PSC members:

Michael Cullen	Executive Officer / Electrical Inspector, Future Energy Skills Australia + Executive Officer, Electrotechnology Industry Advisory Group (IAG)
Dominic Schipano	National Executive Officer, Communications & Information Technology Training Ltd (CITT)
Adrian Lea	Supervising Executive Officer, Curriculum Maintenance Manager for Electrical / Electronics Engineering, Box Hill Institute
Catherine Eymin	Regional Origination & Engineering Manager, Acciona
Caz Saunders	Training & Quality Manager, Solar Training Centre
Daniel Farrant	Head of Programs, Gippsland Tech School
Dr Glen Farivar	Head of Power Electronics Research, University of Melbourne / Melbourne Energy Institute
Dr Patricia Sauri Lavieri	Senior Lecturer in Transport Engineering, University of Melbourne / Melbourne Energy Institute
Greg Cowan	Jobs, Skills and Pathways Manager, Outer East Region, Department of Education
Matthew Natsis	Executive Manager, Northern College of Arts & Technology (NCAT)
Nicola Pero	Executive Manager, Engagement & Social License, Iberdrola Australia
Nicola Sabbadini	Senior Policy Officer, VET Unit, Victorian Curriculum and Assessment Authority

	(VCAA)
Simon Imrei	Senior Project Officer, VET Unit, Victorian Curriculum and Assessment Authority (VCAA).

In attendance:

Colleen Mandaliti	Accreditation expert, TLC Education Design Pty Ltd
Wendy Pederson	Project Officer, CMM for General Manufacturing, Chisholm Institute

This course:

- does not duplicate, by title or coverage, the outcomes of an endorsed training package qualification
- is not a subset of a single training package qualification that could be recognised through one or more statements of attainment or a skill set
- does not include units of competency additional to those in a training package qualification that could be recognised through statements of attainment in addition to the qualification
- does not comprise units that duplicate units of competency of a training package qualification

3.2 Review for re-accreditation

N/A

4. Course outcomes

Standards 5.5, 5.6 and 5.7 AQTF 2021 Standards for Accredited Courses

4.1 Qualification level

The 22695VIC Certificate III in Renewable Energy Industry Pathways is consistent with the AQF Level 3 requirements of the Australian Qualifications Framework as follows:

Knowledge:

Graduates will have factual, technical, procedural and theoretical knowledge in an area of work and learning within renewable energy industry areas. For example, basic energy conversion processes used by renewable energy systems and safe work practices when working with renewable energy systems.

Skills:

Graduates will have:

- cognitive, technical and communication skills to interpret and act on available information. For example, investigating and reporting on information related to renewable energy sources, systems and storage methods
- cognitive and communication skills to apply and communicate known solutions to a variety of predictable problems and to deal with unforeseen contingencies using known solutions. For example, reviewing and documenting renewable energy project brief designs to produce a small-scale model in consultation with others
- technical and communication skills to provide technical information to a variety of specialist and non-specialist audiences. For example, visually representing the process of energy conversion in renewable energy systems
- technical skills to undertake routine and some non-routine tasks in a range of skilled operations. For example, completing work tasks in a range of skilled areas related to renewable energy in industry such as basic surveying, site investigations, engineering drafting, community consultations, data or supply chain analysis, administration, digital technologies and project management, or working with others to produce a small-scale renewable energy system model.

Application of knowledge and skills:

Graduates will be able to demonstrate the application of knowledge and skills:

- with discretion and judgement in the selection of equipment, services or contingency measures. For example, following safe work practices within scope of own role
- to adapt and transfer skills and knowledge within known routines, methods, procedures and time constraints. For example, clarifying work requirements, completing tasks in a required timeframe and communicating findings related to renewable energy in various formats to meet the needs of the audience
- in contexts that include taking responsibility for own outputs in work and learning including participation in teams and taking limited responsibility for the output of others within established parameters. For example, following industry and organisational protocols and procedures when completing tasks and working with others in a specific industry area.

Volume of learning

The volume of learning for this qualification is typically between 1 – 2 years which is consistent with the AQF Volume of Learning requirement for a Certificate III qualification. The course incorporates structured

training delivery and assessment and unstructured learning activities undertaken by the learner including basic research activities and project work to reinforce and practice skills in renewable energy contexts.

4.2 Foundation skills

The following table contains a summary of the foundation skills as identified by the industry for this qualification. The foundation skill facets described here are broad industry requirements that may vary depending on qualification packaging.

Foundation skill	Industry/education/legislative/enterprise/community requirements for this qualification include the following facets:
Reading skills to:	<ul style="list-style-type: none"> review and interpret sources of information related to energy and climate, the economic impact of renewable energy, and energy use and efficiencies review and interpret sources of information related to renewable energy sources, systems and technologies and renewable energy storage systems review sources of information related to career pathways and occupations in renewable energy and the application of renewable energy in different contexts review and interpret technical information and data related to specific task requirements review licensing and regulatory guidelines as they apply to renewable energy interpret and follow workplace procedures, safety procedures, equipment instructions, manufacturer specifications and technical data
Writing skills to:	<ul style="list-style-type: none"> prepare and present information in a format suitable for diverse audiences record information and complete documentation accurately
Oral communication skills to:	<ul style="list-style-type: none"> communicate effectively with team members, supervisors and stakeholders and adjust to meet needs of audience ask questions and listen effectively when communicating with others and seeking feedback present information using appropriate style, tone and vocabulary to meet requirements of audience, context and purpose share information with others in a work team environment



Numeracy skills to:	<ul style="list-style-type: none"> • use simple formulas to complete calculations related to renewable energy systems in different contexts • apply mathematical concepts to solve problems • interpret data, graphs and tables and communicate numerical information
Learning skills to:	<ul style="list-style-type: none"> • ask questions to gain information and to ensure understanding of own work requirements • adopt an open approach to emerging renewable energy technologies
Problem solving skills to:	<ul style="list-style-type: none"> • identify potential or actual hazards and take action to minimise risk • refer issues beyond scope of own role to supervisor
Initiative and enterprise skills to:	<ul style="list-style-type: none"> • source and interpret information related to renewable energy projects
Teamwork skills to:	<ul style="list-style-type: none"> • work collaboratively and effectively with team members • agree on project outcomes and team responsibilities
Planning and organising skills to:	<ul style="list-style-type: none"> • identify own work requirements in consultation with others to meet specified tasks and timeframes • complete tasks within the required timeframe and budget
Self-management skills to:	<ul style="list-style-type: none"> • accept responsibility for given tasks • follow legislative requirements, protocols and procedures relating to own role • plan own work within given task parameters
Technology skills to:	<ul style="list-style-type: none"> • use technology related to work tasks including tools, equipment, devices and materials
Digital literacy skills to:	<ul style="list-style-type: none"> • access reliable sources of information related to renewable energy sources, systems, technologies and applications • use suitable software programs to produce designs, drawings and maps and to prepare reports and presentations



4.3 Recognition given to the course (if applicable)	N/A
4.4 Licensing/regulatory requirements (if applicable)	N/A
5. Course rules	Standards 5.8 and 5.9 AQTF 2021 Standards for Accredited Courses
5.1 Course structure	<p>To achieve the qualification 22695VIC Certificate III in Renewable Energy Industry Pathways, the learner must successfully complete a total of 13 units comprising:</p> <ul style="list-style-type: none">• 6 core units*• 7 elective units** comprising:<ul style="list-style-type: none">○ 3 elective units selected from 1 of the elective streams listed below○ 4 elective units selected from any of the other elective streams listed below. <p>Note:</p> <p>*Core units must be delivered and assessed before commencement of elective units.</p> <p>**Elective units selected from streams must not consist of more than 3 units in total imported from the BSB Business Services Training Package.</p> <p>Where the full course is not completed, a VET Statement of Attainment will be issued for each unit successfully completed.</p>



Unit of competency code	Unit of competency title	Field of Education code (6-digit)	Pre-requisite	Nominal hours
-------------------------	--------------------------	-----------------------------------	---------------	---------------

Core units

BSBWHS311	Assist with maintaining workplace safety		Nil	40
CPCWHS1001	Prepare to work safely in the construction industry		Nil	6
VU23894	Research and report on the relationship between energy, sustainability and climate	129999	Nil	30
VU23904	Research and report on the economic impacts of renewable energy	129999	Nil	30
VU23905	Research and report on current and future directions in renewable energy systems	129999	Nil	30
VU23906	Research and map career pathways and occupations in renewable energy enterprises	120599	Nil	20

Administration and Project Management Stream

BSBESB401	Research and develop business plans		Nil	50
BSBPMG427	Apply project procurement procedures		Nil	40
BSBPMG430	Undertake project work		Nil	60

Agriculture, Permaculture and Agribusiness Stream

AHCAGB406	Keep financial records for primary production business		Nil	60
AHCBUS407	Cost a project		Nil	50

AHCPER324	Establish a permaculture system		Nil	60
BSBESB302	Develop and present business proposals		Nil	30
VU23907	Identify renewable energy opportunities for an agricultural or horticultural enterprise	059999	Nil	60

Community Engagement and Social Licence Stream

BSBCRT412	Articulate, present and debate ideas		Nil	40
BSBOPS302	Identify business risk		Nil	40
BSBPMG429	Apply project stakeholder engagement techniques		Nil	40
LGACOR007	Conduct community consultations		Nil	60
PUACOM012	Liaise with media at a local level		Nil	20

Data Analysis Stream

MSL924005	Process and interpret data		Nil	70
VU23138	Identify appropriate data sources and storage needs		Nil	30
VU23679	Apply organisational data policies		Nil	40
VU23680	Apply basic statistical methods for data analytics		Nil	40
VU23684	Select and use industry data analytics tools		Nil	40

Engineering Drafting stream

MEM09201	Work effectively in an engineering drafting workplace			20
----------	-------------------------------------------------------	--	--	----

MEM09229	Read and interpret technical engineering drawings		Nil	40
MEM13015	Work safely and effectively in manufacturing and engineering		Nil	40
MEM16006	Organise and communicate information		MEM13015	20
MEM30012	Apply mathematical techniques in a manufacturing engineering or related environment		Nil	40
MEM30031	Operate computer-aided design (CAD) system to produce basic drawing elements		Nil	40

Environmental and Cultural Consultancy Stream

AHCECR201	Capture digital media for fieldwork		Nil	30
AHCECR309	Conduct an ecological and cultural site inspection prior to works		Nil	100
RIIENV201E	Identify and assess environmental and heritage concerns		Nil	20

Research and Design Stream

ICPPTD302	Set up and produce 3D prints		Nil	80
VU23897	Research and report on energy storage systems suitable for renewable energy	031399	Nil	30
VU23898	Participate in the design and build of a small-scale renewable energy system	031399	Nil	60

Soil Testing and Site Management Stream

AHCSAW202	Recognise landforms and soil types		Nil	50
-----------	------------------------------------	--	-----	----

AHCSOL406	Sample soils and interpret results		Nil	60
AHCWRK317	Coordinate work site activities		Nil	70
MSL973024	Perform site investigation activities		Nil	40
MSL974018	Conduct geotechnical site investigations		Nil	60
MSS024032	Document simple geological information for a site		Nil	40

Supply Chain Logistics Stream

BSBSUS411	Implement and monitor environmentally sustainable work practices		Nil	40
MEM16008	Interact with computing technology		MEM13015 MEM16006	20
MEM30016	Assist in the analysis of a supply chain		Nil	20
MEM30019	Use resource planning software systems in manufacturing		MEM13015 MEM16006 MEM16008	40

Surveying stream

AHCLSC311	Set out site for construction works		Nil	60
CPPSSI3011	Produce basic maps		Nil	40
CPPSSI3015	Collect basic surveying data		Nil	60
CPPSSI3019	Produce basic plans of surveys		Nil	40
CPPSSI4035	Apply GIS software to spatial problems		Nil	70

5. Course rules

Standard 5.11 AQTF 2021 Standards for Accredited Courses

5.2 Entry requirements

There are no specific entry requirements for this course.

Learners are best equipped to achieve the course outcomes if they have as a minimum, language, literacy and numeracy skills that are equivalent to Level 2 of the Australian Core Skill Framework.

Learners with language, literacy and numeracy skills at lower levels than those suggested will require additional support to successfully undertake the qualifications.

6. Assessment

Standard 5.12 and 5.14 AQTF 2021 Standards for Accredited Courses

6.1 Assessment strategy

All assessment, including Recognition of Prior Learning (RPL), must be compliant with the requirements of:

- Standard 1 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 4.1 and 4.2 of the VRQA Guidelines for VET Providers,

or

- the Standards for Registered Training Organisations 2015 (SRTOs),

or

- the relevant standards and Guidelines for RTOs at the time of assessment.

A holistic process to assessment that integrates several units in practical tasks or projects is encouraged. Assessment must focus on renewable energy within the industry context of each unit.

Core units must be delivered and assessed before commencement of elective units. This sequencing is required to ensure the safety of learners and maintain the integrity and intention of the course in providing pathways into the renewable energy industry.

Units of competency may be assessed in a real or simulated environment that reflects a realistic workplace setting.

Assessment strategies must therefore ensure that:

- all assessments are valid, reliable, flexible and fair
- learners are informed of the context and purpose of the assessment and the assessment process
- feedback is provided to learners about the outcomes of the

assessment process and guidance given for future options

- time allowance to complete a task is reasonable and reflect industry expectations.

Assessment strategies should be designed to:

- cover a range of skills and knowledge required to demonstrate achievement of the intended outcomes
- collect evidence on a number of occasions to suit a variety of contexts and situations
- be appropriate to the skills, knowledge, methods of delivery and needs and characteristics of learners
- assist assessors to interpret evidence consistently
- be equitable to all groups of learners.
- be valid, reliable, flexible, and fair
- inform learners of the context and purpose of the assessment

The following assessment methods are appropriate for units of competency in this accredited course:

- written and/or oral questioning to assess required knowledge
- direct observation of practical tasks, processes and procedures
- simulated activities
- problem solving activities
- practical projects
- reports and portfolios.

Assessment strategies for the imported units should be consistent with the Assessment Requirements for the relevant training packages or accredited courses.

6.2 Assessor competencies

Assessment must be undertaken by a person or persons in accordance with:

- Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guideline 3 of the VRQA Guidelines for VET Providers,

or

- the Standards for Registered Training Organisations 2015 (SRTOs),

or

- the relevant standards and Guidelines for RTOs at the time of assessment.



	Units of competency imported from training packages or accredited courses must reflect the requirements for assessors specified in that training package or accredited course.
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

7. Delivery	Standards 5.12, 5.13 and 5.14 AQTF 2021 Standards for Accredited Courses
--------------------	---------------------------------------------------------------------------------

7.1 Delivery modes	<p>The 22695VIC Certificate III in Renewable Energy Industry Pathways may be delivered either on a full time or part time basis using a combination of delivery modes, including:</p> <ul style="list-style-type: none">• face-to-face, classroom-based delivery• practical demonstration• blended or flexible online delivery• delivery in a real or simulated workplace. <p>Core units must be delivered and assessed before commencement of elective units. This sequencing is required to ensure the safety of learners and maintain the integrity and intention of the course in providing pathways into the renewable energy industry.</p> <p>Some learning activities may be relevant to more than one unit and therefore integration may be appropriate. All delivery should actively involve the learner and learning should be experiential, relevant and age appropriate. Suitable learning activities may include:</p> <ul style="list-style-type: none">• classroom and workshop instruction, practical exercises and tasks• team based or individual projects• research assignments• use of case studies and scenarios• enterprise visits and guest speakers. <p>Contextualisation of imported units is strongly recommended to ensure a focus on renewable energy in industry contexts within the guidelines provided in the relevant training package or delivery advice provided in the accredited course.</p>
7.2 Resources	<p>Training must be undertaken by a person or persons in accordance with:</p> <ul style="list-style-type: none">• Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guideline 3 of the VRQA Guidelines for VET Providers, <p>or</p> <ul style="list-style-type: none">• the Standards for Registered Training Organisations 2015 (SRTOs), <p>or</p>



	<ul style="list-style-type: none">the relevant standards and Guidelines for RTOs at the time of assessment. <p>Units of competency imported from training packages or accredited courses must reflect the requirements for assessors specified in that training package or accredited course.</p>
	<p>General facilities, equipment and other resources required to deliver the Certificate III in Renewable Energy Industry Pathways include:</p> <ul style="list-style-type: none">training facilities and equipmentaccess to computers or digital devices and internetindustry standard software and equipmentsources of current and reliable information related to renewable energyhealth and safety resources including safe work procedures and personal protective equipmentreal or simulated workplace environment. <p>Mandated assessment resources apply to the enterprise units included in this course. Refer to the Assessment Conditions of the individual units.</p> <p>The units of competency imported from training packages or accredited courses must reflect the requirements for resources and trainers specified in that training package or accredited course.</p>

8. Pathways and articulation	Standard 5.10 AQTF 2021 Standards for Accredited Courses
-------------------------------------	-----------------------------------------------------------------

	<p>Currently, there are no formal arrangements for articulation to other accredited courses or higher education qualifications.</p> <p>Learners who complete units of competency from endorsed training packages or accredited courses will be eligible for credit into other qualifications that contain those units.</p>
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

9. Ongoing monitoring and evaluation	Standard 5.15 AQTF 2021 Standards for Accredited Courses
---------------------------------------------	-----------------------------------------------------------------

9.1 Monitoring and evaluation	<p>Ongoing monitoring and evaluation of the 22695VIC Certificate III in Renewable Energy Industry Pathways is the responsibility of the Curriculum Maintenance Manager for Business Industries.</p> <p>A review will be undertaken during the accreditation period and will be informed by feedback from course participants and graduates, teaching</p>
--------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



	<p>staff, and industry stakeholders.</p> <p>The Victorian Registration and Qualifications Authority (VRQA) will be notified of any changes to the course.</p>
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------

Section C – Units of competency

Units of competency contained in the course

Units of competency developed for the course

Code	Title
VU23904	Research and report on the economic impacts of renewable energy
VU23905	Research and report on current and future directions in renewable energy systems
VU23906	Research and map career pathways and occupations in renewable energy enterprises
VU23907	Identify renewable energy opportunities for an agricultural or horticultural enterprise
VU23898	Participate in the design and build of a small-scale renewable energy system

Units of competency imported from other accredited courses

Code	Title
VU23138	Identify appropriate data sources and storage needs
VU23679	Apply organisational data policies
VU23680	Apply basic statistical methods for data analytics
VU23684	Select and use industry data analytics tools
VU23894	Research and report on the relationship between energy, sustainability and climate

VU23897

Research and report on energy storage systems suitable for renewable energy

Units of competency imported from training packages

Code	Title
AHCECR201	Capture digital media for fieldwork
AHCECR309	Conduct an ecological and cultural site inspection prior to works
AHCLSC311	Set out site for construction works
AHCPER324	Establish a permaculture system
AHCSAW202	Recognise landforms and soil types
AHCSOL406	Sample soils and interpret results
AHCWRK317	Coordinate work site activities
BSBCRT412	Articulate, present and debate ideas
BSBESB302	Develop and present business proposals
BSBESB401	Research and develop business plans
BSBOPS302	Identify business risk
BSBPMG427	Apply project procurement procedures
BSBPMG429	Apply project stakeholder engagement techniques
BSBPMG430	Undertake project work
BSBSUS411	Implement and monitor environmentally sustainable work practices



BSBWHS311	Assist with maintaining workplace safety
CPCWHS1001	Prepare to work safely in the construction industry
CPPSSI3011	Produce basic maps
CPPSSI3015	Collect basic surveying data
CPPSSI3019	Produce basic plans of surveys
CPPSSI4035	Apply GIS software to spatial problems
ICPPTD302	Set up and produce 3D prints
MEM09201	Work effectively in an engineering drafting workplace
MEM09229	Read and interpret technical engineering drawings
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM16008	Interact with computing technology
MEM30012	Apply mathematical techniques in a manufacturing engineering or related environment
MEM30016	Assist in the analysis of a supply chain
MEM30019	Use resource planning software systems in manufacturing
MEM30031	Operate computer-aided design (CAD) system to produce basic drawing elements
LGACOR007	Conduct community consultations
MSL924005	Process and interpret data



MSL973024	Perform site investigation activities
MSL974018	Conduct geotechnical site investigations
MSS024032	Document simple geological information for a site
PUACOM012	Liaise with media at a local level
RIIENV201E	Identify and assess environmental and heritage concerns

Section C – Units of competency

Unit code	VU23904
Unit title	Research and report on the economic impacts of renewable energy
Application	<p>This unit describes the performance outcomes, skills and knowledge required to investigate and report on the economic impacts of renewable energy.</p> <p>It requires the ability to gather information on the Australian energy market and the role of renewable energy within the energy market as well as its impact on national and global economies and sustainable development.</p> <p>The unit applies to individuals seeking an understanding of the impacts of renewable energy on the energy market and economies.</p> <p>No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Investigate Australia's energy market operations	1.1	Identify the legislative and regulatory environment impacting Australia's energy markets
		1.2	Identify the structure, roles and responsibilities of key players in Australia's energy market system
		1.3	Identify the rights of energy market consumers
		1.4	Examine Australia's current and potential role in the global energy market
2	Identify factors impacting Australia's transition to a renewable energy system	2.1	Identify factors that influence energy prices
		2.2	Identify the impact of renewable energy on supply, transmission, distribution and price of energy
		2.3	Identify challenges to the integration of renewable energy into the energy system
3	Investigate the impact of renewable energy on	3.1	Identify the current and predicted impacts of renewable energy on global economic growth and sustainable

	global and Australian sustainable development and economic growth		development
		3.2	Assess Australia's progress towards the United Nations Sustainable Development Goal of ensuring access to affordable, reliable, sustainable and modern energy for all
		3.3	Identify the current and predicted impacts of renewable energy on employment, trade and investment, wages and business resilience in Australia
4	Prepare a report on findings	4.1	Collate and summarise research findings
		4.2	Present findings in a report clearly referencing sources of information

Range of Conditions

N/A

Foundation Skills

Foundation skills essential to performance and not explicit in the performance criteria are listed in the table below and must be assessed.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> Review and interpret information on the energy market
Writing skills to:	<ul style="list-style-type: none"> Document findings in a format suitable for diverse audiences
Digital literacy skills to:	<ul style="list-style-type: none"> Access online sources of information

Unit Mapping Information

New unit, no equivalent unit.

Assessment Requirements Template

Title

Assessment Requirements for VU23904 Research and report on the economic impacts of renewable energy

Performance Evidence

The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit and:

- produce a report that:
 - details the key players and factors influencing the operation of the energy market in Australia
 - outlines the role of renewable energy in the energy market and its impact on the Australian and global economy and sustainable development
 - references sources appropriately.

Knowledge Evidence

The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit. This includes knowledge of:

- sources of energy in Australia including:
 - coal and gas
 - solar, wind, water, biomass and hydrogen.
 - nuclear
- structure and operation of Australia's energy supply, transmission and distribution market including:
 - roles and responsibilities of energy market generators and retailers
 - rights of energy market consumers
 - roles of key energy regulators in Australia
- legislation, regulation and rules including national and state government policies, schemes and strategies relating to renewable energy
- Australia's current and potential role in the global energy market
- energy price determinants
- factors impacting Australia's transition to a renewable energy system, including:
 - supply, distribution and price of energy
 - government policies, strategies and investments
 - constraints on and challenges to the integration of renewable energy into the energy system including:
 - transmission infrastructure
 - environmental considerations (off-shore and on-shore)



	<ul style="list-style-type: none">○ cost○ system stability○ operation of the wholesale market○ social, political, business and community challenges• current and predicted impacts of renewable energy on global economic growth and sustainable development• United Nations Sustainable Development Goals, including Australia's progress on Goal 7 - Ensure access to affordable, reliable, sustainable and modern energy for all• impacts of renewable energy on economic growth, trade and investment, wages and business resilience including the ability to adapt to changing environments
Assessment Conditions	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none">• internet• computer or digital device• sources of information related to energy market operation and renewable energy• report template. <p>Assessor requirements</p> <p>No specialist vocational competency requirements for assessors apply to this unit.</p>

Unit code	VU23905
Unit title	Research and report on current and future directions in renewable energy systems
Application	<p>This unit describes the performance outcomes, skills and knowledge required to research current use and future directions for renewable energy systems.</p> <p>It requires the ability to identify and compare renewable energy sources, systems and technologies, identify energy conversion processes and assess the challenges and future for renewable energy technologies in Australia.</p> <p>The unit applies to individuals seeking an understanding of the processes used in renewable energy systems and the challenges facing the transition to renewable energy.</p> <p>No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Investigate current availability and uses of renewable energy sources and systems	1.1	Identify currently available renewable energy sources and systems
		1.2	Investigate global use case examples of renewable energy technologies
		1.3	Determine the suitability of renewable energy technologies for different geographical, climatic and economic conditions
		1.4	Identify and illustrate the conversion processes used in renewable energy systems
2	Identify and assess challenges and future directions in Australia's transition to renewable energy	2.1	Identify Australia's existing and emerging renewable energy operations
		2.2	Compare advantages and disadvantages of renewable energy technologies in use in Australia
		2.3	Identify and assess challenges to Australia's transition to a renewable energy economy

		2.4	Source and use data to predict future renewable energy usage trends and directions for renewable energy systems in Australia
3	Prepare a report on findings	3.1	Collate and summarise research findings
		3.2	Present findings in a report clearly referencing sources of information

Range of Conditions

N/A

Foundation Skills

Foundation skills essential to performance and not explicit in the performance criteria are listed in the table below and must be assessed.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> Review and interpret technical reports and data
Writing skills to:	<ul style="list-style-type: none"> Document information in a format suitable for audience
Numeracy skills to:	<ul style="list-style-type: none"> Interpret data, graphs and tables
Digital literacy skills to:	<ul style="list-style-type: none"> Access reliable sources of information online

Unit Mapping Information

New unit, no equivalent unit.

Assessment Requirements Template

<p>Title</p>	<p>Assessment Requirements for VU23905 Research and report on current and future directions in renewable energy systems</p>
<p>Performance Evidence</p>	<p>The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit and:</p> <ul style="list-style-type: none"> • prepare a report outlining the current state and challenges as well as the future of renewable energy in Australia • visually represent the process of renewable energy conversion into electricity, heat or mechanical power in renewable energy systems
<p>Knowledge Evidence</p>	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit.</p> <p>This includes knowledge of:</p> <ul style="list-style-type: none"> • types of renewable energy sources <ul style="list-style-type: none"> ○ solar (photovoltaic and thermal) ○ wind (off-shore and on-shore) ○ hydropower (tidal and pumped) ○ biomass ○ geothermal ○ green hydrogen • main technologies for renewable energy sources • basic conversion process required to turn a renewable source of energy into electricity, heat or power (propulsion) • use of pneumatic circuits in renewable energy systems • suitable conditions and locations for renewable energy systems • advantages and disadvantages of renewable energy technologies • challenges to transitioning to renewables including: <ul style="list-style-type: none"> ○ economic ○ cultural ○ political ○ infrastructure needs and network stability ○ skills shortages ○ social licence ○ renewable energy trends.
<p>Assessment Conditions</p>	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none"> • internet • computer or digital device • sources of information including reports, articles and case studies related to:

- examples of renewable energy technologies currently in use globally
- current and emerging renewable energy operations in Australia
- renewable energy trends and directions
- report template.

Assessor requirements

No specialist vocational competency requirements for assessors apply to this unit.

Unit code	VU23906
Unit title	Research and map career pathways and occupations in renewable energy enterprises
Application	<p>This unit describes the performance outcomes, skills and knowledge required to research and map renewable energy career opportunities and pathways to inform future career options.</p> <p>It requires the ability to gather information to develop understanding of the entry level, professional and paraprofessional occupations and skills that are required by utility-scale and smaller scale renewable energy enterprises in metropolitan, regional, or agricultural contexts.</p> <p>The unit applies to individuals seeking an understanding of the diverse range of renewable energy occupations and pathways to those occupations when considering their own career or further education and training options.</p> <p>No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Investigate entry level, paraprofessional and professional occupations in renewable energy enterprises	1.1	Identify the stages of development and multi-disciplinary aspects of proposed renewable energy enterprises
		1.2	Access reliable sources of information to investigate career options for entry level, paraprofessional, and professional occupations in renewable energy enterprises
		1.3	Identify education and training pathway options for occupations in renewable energy enterprises
		1.4	Determine transferable skills required for employment in renewable energy enterprises
		1.5	Investigate current and predicted future skill shortages in renewable energy enterprises and identify entry level, paraprofessional or professional occupations of interest
		1.6	Identify specific skills required for occupations identified
		1.7	Examine the impact of emerging renewable energy technologies on current job roles, future work

			opportunities and skill requirements
		1.8	Collate and assemble research findings
2	Map career pathways into entry level, paraprofessional or professional occupations in renewable energy enterprises	2.1	Identify personal interests, capabilities, passions and career aspirations within renewable energy
		2.2	Reflect on own qualities and compare these to the transferable skills identified for occupations of interest
		2.3	Identify methods for development of transferable and specific skills for identified occupations
		2.4	Use a digital tool to map the possible pathways into renewable energy enterprises

Range of Conditions

N/A

Foundation Skills

Foundation skills essential to performance and not explicit in the performance criteria are listed in the table below and must be assessed.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> review and interpret sources of information related to careers and occupations in renewable energy enterprises
Writing skills to:	<ul style="list-style-type: none"> prepare information in a suitable format for audience
Digital literacy skills to:	<ul style="list-style-type: none"> access reliable sources of information use appropriate software to produce digital pathway mapping

Unit Mapping Information

New unit, no equivalent unit.

Assessment Requirements Template

Title

Assessment Requirements for VU23906 Research and map career pathways and occupations in renewable energy enterprises

Performance Evidence

The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit and:

- assemble information on entry level, paraprofessional, and professional occupations for careers in renewable energy enterprises including qualifications required and possible career pathways
- select 3 different occupations required within renewable energy enterprises. Occupations may be selected from any three of the following occupational areas or another occupational area identified in a renewable energy enterprise:
 - surveying
 - engineering and drafting
 - environmental and cultural consultancy
 - soil testing and site management
 - community engagement and social licence
 - agriculture, permaculture and agribusiness
 - data analysis
 - supply chain logistics
 - administration and project management
 - science and engineering research and design

For each occupation selected, outline the skills required currently as well as the skills likely to be required for the future

- prepare a digital map showing the possible education and training pathways for the identified occupations.

Knowledge Evidence

The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit.

This includes knowledge of:

- development stages of proposed renewable energy enterprises
- professional and paraprofessional occupations required by utility-scale and smaller scale renewable energy enterprises in metropolitan, regional, rural or agricultural contexts
- career and employment opportunities in renewable energy enterprises
- transferable and specific skills required for occupations in renewable energy projects associated with agriculture and utilities
- sources of reliable career and education pathway information
- types of training and education options available in renewable energy



	<ul style="list-style-type: none">• certifications such as licensing or other relevant national and state requirements and regulations• impact of emerging renewable energy technologies on current and future job roles and occupations.
Assessment Conditions	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none">• internet• computer or digital device• sources of information related to current and emerging renewable energy careers and jobs• digital pathway mapping template. <p>Assessor requirements</p> <p>No specialist vocational competency requirements for assessors apply to this unit.</p>

Unit code	VU23907
Unit title	Identify renewable energy opportunities for an agricultural or horticultural enterprise
Application	<p>This unit describes the performance outcomes, skills and knowledge required to investigate and identify renewable energy options for an agricultural or horticultural enterprise.</p> <p>It requires the ability to investigate methods for estimating energy efficiency, create an energy use profile for an enterprise, explore and assess feasibility of renewable energy options for the enterprise. It includes consulting with stakeholders and reporting on findings.</p> <p>The unit applies to people seeking to develop skills in identifying renewable energy options for agricultural or horticultural enterprise contexts.</p> <p>No occupational licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Investigate methods of estimating energy use and efficiency for agricultural or horticultural operations	1.1	Investigate methods and tools used to assess energy use and efficiency in agricultural or horticultural operations
		1.2	Identify the energy requirements of different agricultural or horticultural enterprises
		1.3	Compare seasonal and daily energy consumption patterns of different types of agricultural or horticultural operations
2	Create an energy use profile for a specified agricultural or horticultural enterprise	2.1	Review the agricultural or horticultural enterprise energy brief and confirm requirements
		2.2	Consult with stakeholders to gather information about the seasonal and daily energy consumption patterns and requirements of the enterprise
		2.3	Create an energy checklist tool suitable for the specific enterprise
		2.4	Identify and document high energy use operations and equipment using the energy checklist tool

		2.5	Identify the specific needs and constraints relating to the enterprise
		2.6	Create an energy use profile for the enterprise based on findings, highlighting key problem areas
3	Identify and report on renewable energy opportunities for the enterprise	3.1	Investigate renewable energy opportunities and technologies for the agricultural or horticultural enterprise to address problem areas
		3.2	Identify advantages and disadvantages of each renewable energy option, including energy storage needs
		3.3	Identify government incentives and funding options available locally
		3.4	Determine the feasibility of each opportunity identified
		3.5	Summarise and report on your findings to stakeholders

Range of Conditions

N/A

Foundation Skills

Foundation skills essential to performance and not explicit in the performance criteria are listed in the table below and must be assessed.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> Review and interpret information related to energy use and efficiencies
Writing skills to:	<ul style="list-style-type: none"> Document information in a format suitable for audience
Oral communication skills to:	<ul style="list-style-type: none"> Ask questions and seek clarification from stakeholders
Numeracy skills to:	<ul style="list-style-type: none"> Use simple formulas to calculate energy efficiency and complete simple cost benefit calculations
Digital literacy skills to:	<ul style="list-style-type: none"> Access information from relevant websites Use a suitable software application to produce and present information for audience

Unit Mapping Information

New unit, no equivalent unit.

Assessment Requirements Template

Title	Assessment Requirements for VU23907 Identify renewable energy solutions for an agricultural or horticultural enterprise
Performance Evidence	<p>The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit and:</p> <ul style="list-style-type: none"> produce a report on the feasibility of renewable energy opportunities for a specific agricultural or horticultural enterprise.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit.</p> <p>This includes knowledge of:</p> <ul style="list-style-type: none"> common methods used to record energy use and measure energy efficiency in agricultural or horticultural enterprises, including: <ul style="list-style-type: none"> checklists energy audit methods smart meters and sub-metering pump profiles assessed against benchmark profiles data on diesel use formulas used to calculate energy efficiency typical energy consumption patterns of agricultural or horticultural operations including: <ul style="list-style-type: none"> dairy irrigated crop production livestock intensive features, advantages and disadvantages of renewable energy options and technologies relating to: <ul style="list-style-type: none"> solar wind hydro geothermal biomass battery storage common methods used to determine the feasibility of renewable energy technologies for an enterprise including: <ul style="list-style-type: none"> goals and priorities of the enterprise site assessment

	<ul style="list-style-type: none"> ○ technical analysis including: <ul style="list-style-type: none"> ▪ energy efficiency measures needed ▪ suitable renewable applications to address specific problems ○ costs and benefits of renewable energy installations including: <ul style="list-style-type: none"> ▪ installation and maintenance costs ▪ storage requirements ▪ pay-back periods ▪ estimated energy consumption savings ▪ required behavioural or operational changes ▪ energy independence ▪ business resilience ○ grants and incentives ○ environmental benefits ○ risk analysis and regulations.
Assessment Conditions	<p>Assessment must ensure access to:</p> <ul style="list-style-type: none"> • internet • computer or digital device and relevant software applications • sources of information related to energy efficiency and agricultural or horticultural enterprises including government reports, articles and case studies • case studies of actual renewable energy use in agricultural or horticultural enterprises • energy project brief for an agricultural or horticultural enterprise • project templates including: <ul style="list-style-type: none"> ○ energy checklist tool template examples ○ energy use profile template examples ○ cost benefit worksheet ○ report format • enterprise stakeholders <p>Assessor requirements</p> <p>No specialist vocational competency requirements for assessors apply to this unit.</p>

Unit code	VU23898
Unit title	Participate in the design and build of a small-scale renewable energy system
Application	<p>This unit describes the performance outcomes, skills and knowledge required to participate in the design and build a small-scale renewable energy system to meet a project brief.</p> <p>It requires the ability to work in a team to prepare a project proposal and action plan, design and build a small-scale renewable energy system to meet the agreed brief, and review and evaluate results.</p> <p>This unit applies to individuals seeking to work with renewable energy systems.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.</p>
Pre-requisite Unit(s)	Nil

Element		Performance Criteria	
Elements describe the essential outcomes of a unit of competency.		Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the assessment requirements.	
1	Prepare a team proposal to design and build a small-scale renewable energy system to meet a specified project brief	1.1	Work with team members to review the renewable energy system project brief and document the project scope and outcomes
		1.2	Confirm the application and purpose of the renewable energy system
		1.3	Confirm types of renewable energy sources and systems suitable for project
		1.4	Determine renewable energy system power requirements from project brief
		1.5	Seek expert advice on suitability of proposed system for location site
		1.6	Review system outcomes with team to reach consensus on final project proposal
		1.7	Prepare the project proposal and seek supervisor approval
2	Determine and document project requirements in a team project action plan	2.1	Confirm project outcomes with supervisor
		2.2	Complete draft action plan template with agreed project timelines

		2.3	Identify and record the components required to meet outcomes
		2.4	Prepare draft of renewable energy system layout
		2.5	Identify and record energy conversion needs and storage solutions to meet agreed project outcomes
		2.6	Prepare draft sketches for renewable energy system design and component requirements
		2.7	Determine tools, parts, components and other resources required for the project
		2.8	Confirm team roles and work with team to allocate project tasks to team members
		2.9	Estimate project costs and resource requirements to achieve outcomes
		2.10	Document all project requirements on action plan and seek approval from supervisor
3	Produce basic design drawings for the small-scale renewable energy system to meet team project outcomes	3.1	Produce working drawings using suitable design tools
		3.2	Confirm action plan and cost estimates align with working design drawings
		3.3	Submit working drawings for supervisor feedback and approval
4	Complete a risk assessment template for project	4.1	Identify and document project safety considerations
		4.2	Identify and record potential risks and hazards for project build
		4.3	Identify and record risk mitigation strategies
		4.4	Complete risk assessment template and seek supervisor approval to proceed with project build according to design drawings
5	Build the small-scale renewable energy	5.1	Source and prepare components, parts, tools and resources in line with the action plan

	system in line with approved plan	5.2	Apply personal protective equipment (PPE) and use safe work practices at all times during renewable energy system build
		5.3	Undertake small-scale renewable energy system build addressing challenges as a team and under close supervision
		5.4	Check project progress against agreed timelines in collaboration with team members
		5.5	Trial and test individual components before final assembly
		5.6	Construct or assemble renewable energy system components and test system works as expected
		5.7	Check tools and equipment for damage and return safely to storage
6	Demonstrate, review and document team project outcomes	6.1	Demonstrate the operation of the final renewable energy system to supervisor and seek feedback
		6.2	Review project outcomes against the project plan and document feedback received

Range of Conditions

N/A

Foundation Skills

Foundation skills essential to performance and not explicit in the performance criteria are listed in the table below and must be assessed.

Skill	Description
Reading skills to:	<ul style="list-style-type: none"> Review and interpret basic technical information on renewable energy systems
Writing skills to:	<ul style="list-style-type: none"> Prepare documentation in a format suitable for audience
Oral communication skills to:	<ul style="list-style-type: none"> Communicate effectively with team members and others
Technology skills to:	<ul style="list-style-type: none"> Use suitable software to produce design Use appropriate tools to produce, construct or assemble renewable energy system
Digital literacy skills to:	<ul style="list-style-type: none"> Access technical project information on the internet

Unit Mapping Information	New unit, no equivalent unit.

Assessment Requirements Template

Title	Assessment Requirements for VU23898 Participate in the design and build of a small-scale renewable energy system
Performance Evidence	<p>The learner must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit and:</p> <ul style="list-style-type: none"> • work collaboratively under close supervision in a small team to design, build and demonstrate a small-scale renewable energy system to meet a specified project brief • review and document project outcomes.
Knowledge Evidence	<p>The learner must be able to demonstrate essential knowledge required to effectively do the task outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role.</p> <p>This includes knowledge of:</p> <ul style="list-style-type: none"> • effective communication and teamwork principles • basic project planning and monitoring techniques • basic elements of a project proposal and action plan including: <ul style="list-style-type: none"> ○ stages or steps of the project ○ milestones to be achieved ○ team member responsibilities ○ timelines ○ resources required for stages or steps • renewable energy sources including: <ul style="list-style-type: none"> ○ solar ○ wind ○ bioenergy ○ geothermal ○ hydrogen fuel cell ○ hydropower ○ ocean energy • purposes, uses and suitable locations for renewable energy systems and technology including: <ul style="list-style-type: none"> ○ solar panels ○ wind turbines ○ hydro turbines ○ biomass boilers ○ geothermal heat pumps ○ fuel cell stacks • energy categories and types • techniques used to identify hazards and assess risk



	<ul style="list-style-type: none">• principles and processes of energy conversion in renewable energy systems• basic electrical principles including:<ul style="list-style-type: none">○ AC/DC current○ Ohm's Law○ power, current, voltage and resistance• components of renewable energy systems including:<ul style="list-style-type: none">○ generators○ turbines○ converters○ transformers• energy storage systems including:<ul style="list-style-type: none">○ battery (Nickel-Cadmium, Sodium-sulphur, Lithium Ion, Zinc-air, Lead acid, flow batteries)○ thermal○ mechanical○ pumped hydro○ hydrogen• renewable energy system design considerations including:<ul style="list-style-type: none">○ uses of small-scale systems○ materials required and approximate costs○ energy storage system for excess power○ enhanced system reliability○ lifespan of storage systems○ ease of replacement or expansion of storage systems• renewable energy system location considerations including:<ul style="list-style-type: none">○ land use regulations○ potential shading or other limitations○ land size and shape○ orientation○ climate and topography○ environmental factors.
Assessment Conditions	<p>Skills can be demonstrated in a simulated environment that reflects real workplace conditions with access to suitable equipment and resources.</p> <p>Assessment must ensure access to:</p> <ul style="list-style-type: none">• renewable energy project brief including proposed use, scale and location of the renewable energy system• site survey brief• internet and computer or digital device• sources of expert advice and information related to renewable energy systems

- software applications suitable for producing working drawings
- 3D printer and related equipment
- project proposal and action plan templates
- risk assessment template
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) for renewable energy system production
- resources and components suitable for constructing a working small-scale renewable energy system
- team members and supervisor.

Assessor requirements

No specialist vocational competency requirements for assessors apply to this unit.