# Training & Assessment Strategy 2 – Solar

# UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems
# UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems
# UEENEEK135A - Design grid connected photovoltaic power supply systems

| | |
|---|---|
| **Relates to standards:** | 1.1 – 1.4, 5.1 – 5.4 Standards for Registered Training Organisations (RTOs) 2015<br>1.1, 2.7, 2.8 ACT Standards for Delivery of Training – Skills Canberra |
| **Applicable to:** | Learners, employers, community, industry, the Australian Skills Quality Authority, Skills Canberra, Training Services NSW.<br>Global Energy Training Solutions management, trainers/assessors, administration staff, contractors, volunteers and visitors. |
| **Related documents:** | Attachment 3 – Trainer and Assessor Matrix<br>Attachment 4 – Trainer and Assessor Competency tasks<br>Policy & Procedure 2 – Credit Transfer & Recognition of Prior Learning<br>Policy & Procedure 3 – Learner Support<br>Policy & Procedure 4 – Assessment<br>Policy & Procedure 11 – Competency & Qualification Assessment Decisions<br>ACT Building and Construction Industry Training Fund, Training Plan 2017 |
| **Monitor and review:** | In accordance with: Policy & Procedure 18 – Quality assurance |
| **Responsibility:** | Ben Murphy – as Proprietor / Chief Executive |
| **Questions/queries:** | administration@gets.edu.au (+61) 02 6262 0077 |

## Table of Contents

1. Training Product:....2
2. Training and Assessment Strategy Objective:....2
3. List of Policies and Procedures:....3
4. Our Responsibility and Commitment:....3
Training and assessment:....3
Funding providers:....3
UEE11 training package:....3
AQF Certificate III Level criteria....4
AQF Certificate III Level volume of learning....4
AQF Certificate IV Level criteria....4
AQF Certificate IV Level volume of learning....5

5. Prerequisites and use as electives....5
Pre-requisites....5
For use as electives in Certificate III Electrotechnology Electrician - UEE30811....5
6. Mode of Delivery:....6
7. Entry Requirements....6
Prior industry experience and qualifications:....6
Australian Qualifications Framework level:....6
Language Literacy and Numeracy level:....6
8. Learner types, programs and enrolment restrictions:....7
Relevant industry sectors....7
Learner types, programs and enrolment restrictions table:....7
9. Licensing requirements:....7
Licence to practice:....7
Clean Energy Council accreditation outcome:....8
10. Duration and Scheduling....9
Off-the-job training hours:....9
11. Fees....9
12. Assessment Resources, Methods and Timing:....9
13. Learning Resources:....9
14. Human Resources:....9
15. Physical Resources:....10
Training location....10
Physical resources - Facility....10
Physical resources – Solar training room....10
16. Strategies for ‘stand-alone’ single units or skill sets:....11
17. Strategies for ‘assessment only’ pathways:....11
18. Abbreviations:....11
19. Version Control:....11

## 1. Training Product:

Units of competency:

- UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems
- UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems
- UEENEEK135A - Design grid connected photovoltaic power supply systems

## 2. Training and Assessment Strategy Objective:

To ensure a quality program that meets or exceeds the requirements of the;

- Australian Skills Quality Authority, and
- Skills Canberra, and
- UEE11 training package, and
- AQF requirements for qualifications at a Certificate III/IV level

To ensure that accurate and comprehensive information is provided to prospective learners and employers, to enable

them to to make informed decisions when deciding on a Registered Training Organisation and/or Training Product. To ensure our program is tailored to meet the needs of individual learners taking into account their existing skills and knowledge, previously completed competencies and any specific needs or disabilities.

## 3. List of Policies and Procedures:

- Policy & Procedure 1 – Enrolment
- Policy & Procedure 2 – Credit Transfer & Recognition of Prior Learning
- Policy & Procedure 3 – Learner Support
- Policy & Procedure 4 – Assessment
- Policy & Procedure 5 – Academic Misconduct
- Policy & Procedure 6 – Alcohol & Other Drugs
- Policy & Procedure 7 – Access, Equity & Diversity
- Policy & Procedure 8 – Vulnerable People
- Policy & Procedure 9 – Work Health & Safety
- Policy & Procedure 10 – Incident, Injury & Rehabilitation
- Policy & Procedure 11 – Competency & Qualification Assessment Decisions
- Policy & Procedure 12 – Complaints & Appeals
- Policy & Procedure 13 – Privacy
- Policy & Procedure 14 – Fees
- Policy & Procedure 15 – Industry & Employer Engagement
- Policy & Procedure 16 – Trainers & Assessors
- Policy & Procedure 17 – Administration & Other Staff
- Policy & Procedure 18 – Quality Assurance
- Policy & Procedure 19 – Business & Financial Risk Management
- Policy & Procedure 20 – Changes to Qualifications or Business
- Policy & Procedure 21 – Conflict of Interest
- Policy & Procedure 22 – Marketing & Advertising
- Policy & Procedure 23 – Environmental Management

## 4. Our Responsibility and Commitment:

**Training and assessment:**

It is our responsibility to provide quality training and assessment services and to provide AQF certification documentation in compliance with the Australian Skills Quality Authority standards:

- *Standards for Registered Training Organisations (RTOs) 2015*

**Funding providers:**

It is our responsibility to provide quality training and assessment services in compliance with Skills Canberra standards:

- *ACT Standards for Delivery of Training – Skills Canberra*
- *ACT Standards Compliance Guide for Australian Apprenticeships Training*

It is our responsibility to provide quality training and assessment services in compliance with the ACT Building and Construction Industry Training Fund Authority, Training Plan 2017

**UEE11 training package:**

It is our responsibility to ensure the requirements of the Certificate III in Electrotechnology Electrician – UEE30811

training package are met.
For the qualification:

- Packaging rules and completion requirements.
- Prerequisite pathways.

For individual units of competency:

- Licensing/Regulatory Information: Licence to practice
  - During Training
  - In the workplace
- Pre-Requisite Unit(s)
- Employability Skills
- Elements and Performance Criteria
- Required Skills and Knowledge
- Evidence Guide
  - Overview of Assessment
  - Critical aspects of evidence required to demonstrate competency in this unit
  - Context of and specific resources for assessment
  - Method of assessment
  - Concurrent assessment and relationship with other units
- Range Statement
- Competency Field: Literacy and numeracy skills

**AQF Certificate III Level criteria**

It is our responsibility to ensure learners achieving a Statement of Attainment for;

- UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems, and
- UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems,

will:

- have a body of theoretical knowledge and practical skills for work and/or further learning.
- have significant procedural knowledge in specific work areas.
- have the technical communication skills necessary to select and apply a specialised range of methods, tools, and materials to:
  - complete routine workplace activities.
  - provide and transmit solutions to both predictable and unpredictable problem situations.
- skilfully apply knowledge to demonstrate autonomous judgement taking limited responsibility in known and stable contexts, within established parameters.

**AQF Certificate III Level volume of learning**

UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems

- Requires:
  - 1.5 days off the job training (or Recognition of Prior Learning equivalent)
  - Successful completion of theory, practical and simulated work place assessments.
  - Demonstrated skills mastery with pre-requisites units of Competency as outlined below.

UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems

- Requires:
  - 2 days off the job training (or Recognition of Prior Learning equivalent)
  - Successful completion of theory, practical and simulated work place assessments.
  - Demonstrated skills mastery with pre-requisite units of Competency as outlined below.

**AQF Certificate IV Level criteria**

It is our responsibility to ensure learners achieving a Statement of Attainment for;

- UEENEEK135A - Design grid connected photovoltaic power supply system,

will:

- have a body of theoretical knowledge and practical skills for work and/or further learning.
- have significant procedural knowledge in specific work areas.
- have the technical communication skills necessary to select and apply a specialised range of methods, tools, and materials to:
  - complete routine workplace activities.
  - provide and transmit solutions to both predictable and unpredictable problem situations.
- skilfully apply knowledge to demonstrate autonomous judgement taking limited responsibility in known and stable contexts, within established parameters.

**AQF Certificate IV Level volume of learning**

UEENEEK135A - Design grid connected photovoltaic power supply systems

- Requires:
  - 1.5 days off the job training (or Recognition of Prior Learning equivalent)
  - Successful completion of theory, practical and simulated work place assessments.
  - Demonstrated skills mastery with pre-requisite units of Competency as outlined below.

## 5. Prerequisites and use as electives

**Pre-requisites**

| Unit of Competency | Pre-requisites | Pre-requisites to Pre-requisites |
|---|---|---|
| UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems | UEENEEE104A | UEENEEE101A |
| | UEENEEE137A | UEENEEE101A |
| | UEENEEG106A | UEENEEE101A, UEENEEE102A, UEENEEE105A, UEENEEE107A |
| UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems | UEENEEK125A | As above |
| | UEENEEG103A | UEENEEE101A, UEENEEE102A, UEENEEE104A, UEENEEE105A, UEENEEE107A, UEENEEE137A, UEENEEG006A, UEENEEG063A, UEENEEG101A, UEENEEG102A, UEENEEG106A, UEENEEG107A, UEENEEG108A, UEENEEG109A |
| UEENEEK135A - Design grid connected photovoltaic power supply systems | UEENEEK125A | As above |

**For use as electives in Certificate III Electrotechnology Electrician - UEE30811**

| Unit of Competency | Elective weighting points |
|---|---|
| UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems | 20 weighting points |
| UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems | 40 weighting points |
| UEENEEK135A - Design grid connected photovoltaic power supply systems | Not eligible for use as elective in UEE30811 |

## 6. Mode of Delivery:

The mode of delivery:

- Off-the-job face to face training and assessment in accordance with duration and scheduling below.

In addition:

- Simulated work site assessments are conducted for each unit of competency.

## 7. Entry Requirements

**Prior industry experience and qualifications:**

There are no specific industry experience or qualifications required for these units of competency.

However to enter onto a construction site in the ACT, workers are required as a minimum to hold:

- White card (CPCCOHS1001A - Work safely in the construction industry)
- Asbestos awareness (10314NAT - Course in Asbestos Awareness)

Depending on the type of construction work undertaken, other training may be required including however not limited to:

- Height safety training (RIIWHS204D - Work safely at heights)
- Confined space training (RIIWHS202D - Enter and work in confined spaces)
- Elevated Work Platform training (RIIHAN301D - Operate elevating work platform)

The above courses are separate to our training courses, for further information on Construction Occupation Licensing please contact Access Canberra www.accesscanberra.act.gov.au

**Australian Qualifications Framework level:**

| Units of Competency | Level |
|---|---|
| UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems | III |
| UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems | III |
| UEENEEK135A - Design grid connected photovoltaic power supply systems | IV |

**Language Literacy and Numeracy level:**

| Units of Competency | Language Literacy and Numeracy level |
|---|---|
| UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems | Reading 3, Writing 3, Numeracy 3 |
| UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems | Reading 3, Writing 3, Numeracy 3 |
| UEENEEK135A - Design grid connected photovoltaic power supply systems | Reading 5, Writing 5, Numeracy 5 |

All learners are assessed and graded in Language Literacy and Numeracy and support offered where applicable in accordance with Policy & Procedure 3 – Learner Support

## 8. Learner types, programs and enrolment restrictions:

**Relevant industry sectors**

Domestic and commercial solar industry installers, maintainers and designers.

**Learner types, programs and enrolment restrictions table:**

| Learner types, programs and enrolment restrictions | | | | | | |
|---|---|---|---|---|---|---|
| **Learner Type** | **Program** | **Enrolment Restrictions** | **Duration** | **Qualification Outcome** | **Accreditation outcome** | **Eligible to perform in the workplace** |
| Solar installer<br>UEENEEK125A<br>UEENEEK148A | Solar Install | Licensed Electrician or Apprentice Electrician who has met all prerequisites | 3.5 days of off-the-job technical studies | No | Clean Energy Council Stand-alone Power System Install[1] | Electrician - Yes<br>Apprentice electrician – under supervision or if below 120V d.c. |
| Solar designer and installer<br>UEENEEK125A<br>UEENEEK148A<br>UEENEEK135A | Solar Design & Install | Licensed Electrician or Apprentice Electrician who has met all prerequisites | 5 days of off-the-job technical studies | No | Clean Energy Council Stand-alone Power System Design and Install[1] | Electrician - Yes<br>Apprentice electrician – under supervision or if below 120V d.c. |
| Solar designer<br>UEENEEK125A<br>UEENEEK135A | Solar Design | Must meet all prerequisites | 5 days of off-the-job technical studies | No | Clean Energy Council Stand-alone Power System Design[1] | Only if below 120V d.c. |

[1]In accordance with: Clean Energy Council accreditation outcome section below.

## 9. Licensing requirements:

**Licence to practice:**

UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems

The skills and knowledge described in this unit do not require a license to practice in the workplace provided equipment is not connected to installation wiring at voltages above 50 V a.c. or 120 V d.c. However other conditions may apply in some States/Territories subject to regulations related to electrical work.

Note. Competency requirements to be granted a license to carry out installations, fault finding, repair or maintenance on low voltage electrical installations is incorporated in unit UEENEEG105A and all prerequisite units it specifies

Practice in the workplace and during training is also subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Note:

1. Compliance with permits may be required in various jurisdictions and typically relates to the operation of plant, machinery and equipment such as elevating work platforms, powder operated fixing tools, power operated tools, vehicles, road signage and traffic control and lifting equipment. Permits may also be required for some work environments such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

2. Compliance may be required in various jurisdictions relating to currency in First Aid, confined space, lifting, risk

safety measures etc.

UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems

The skills and knowledge described in this unit require a license to practice in the workplace subject to regulations for undertaking of electrical work. Practice in workplace and during training is also subject to regulations directly related to occupational health and safety and where applicable, contracts of training such as apprenticeships.

Note.

Competency requirements to be granted a license to carry out installations, fault finding, repair or maintenance on low voltage electrical installations is incorporated in unit UEENEEG105A and all prerequisite units it specifies

UEENEEK135A - Design grid connected photovoltaic power supply systems

The skills and knowledge described in this unit do not require a license to practice in the workplace. However, practice in this unit is subject to regulations directly related to occupational health and safety and contracts of training such as new apprenticeships.

**Clean Energy Council accreditation outcome:**

Clean Energy Council Accreditation pathways:

- https://www.solaraccreditation.com.au/dam/solar-accred/installers/becoming-accredited/Accreditation-Pathways-Required-Training/CEC%20Accreditation%20Pathways%202016.pdf
- www.solaraccreditation.com.au/dam/solar-accred/installers/flyers/CEC-Solar-Accreditation-flyer/cec-solar-accreditation-flyer.pdf

Learners who achieve:

- UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems
- UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems
- UEENEEK135A - Design grid connected photovoltaic power supply systems

May apply for Grid-connect PV System Accreditation with the Clean Energy Council in accordance with the following table:

| **Unit of Competencies required for Licence** | **Clean Energy Council Licence types** | | |
|---|---|---|---|
| | **Grid-connect Design** | **Grid-connect Install** | **Grid-connect Design & Install** |
| | | **Must hold electrical Licence** | |
| UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems | x | x | x |
| UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems | | x | x |
| UEENEEK135A - Design grid connected photovoltaic power supply systems | x | | x |

## 10. Duration and Scheduling

**Off-the-job training hours:**

Nominal off-the-job training hours can be found in the following table:

| Unit of competency | Nominal off-the-job training hours |
|---|---|
| UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems | 14 hours over 2 days |
| UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems | 14 hours over 2 days |
| UEENEEK135A - Design grid connected photovoltaic power supply systems | 14 hours over 2 days |

## 11. Fees

| Units of Competency | Full cost | Full cost if eligible for TFA rebates | Full cost if an apprentice at GETS |
|---|---|---|---|
| UEENEEK125A - Solve basic problems in photovoltaic energy apparatus and systems[3] | $500 | $160 | No extra fees (elective in Cert III) |
| UEENEEK148A - Install, configure and commission LV grid connected photovoltaic power systems[3] | $500 | $160 | No extra fees (elective in Cert III) |
| UEENEEK135A - Design grid connected photovoltaic power supply systems[3] | $500 | $160 | $160 |
| Total: | $1,500 | $480 | $160 |

Note: Fee subsidies from the ACT Building and Construction Industry Training Fund Authority may apply for eligible ACT Building and Construction industry workers.

## 12. Assessment Resources, Methods and Timing:

In accordance with:

- Policy & Procedure 4 – Assessment
- Policy & Procedure 11 – Competency & Qualification Assessment Decisions

## 13. Learning Resources:

In accordance with: Policy & Procedure 3 – Learner Support

## 14. Human Resources:

In accordance with:

- Attachment 3 – Trainer and Assessor Matrix
- Attachment 4 – Trainer and Assessor Competency tasks

## 15. Physical Resources:

**Training location**

Ground Floor 25-27 Darling St Mitchell ACT 2911

**Physical resources - Facility**

Training facility summary:
- Total area 400 $m^2$
- Electrical training room 84 $m^2$
- Solar room 82 $m^2$
- Telecommunications training room 50 $m^2$
- Secure office area with serving counter 60 $m^2$
- Meeting room and septate office space 12 $m^2$
- Staff room 12 $m^2$
- Waiting room 32 $m^2$
- Lunch room 32$m^2$
- Learner kitchenette 12 $m^2$
- Staff/learner kitchenette 12 $m^2$
- Outdoor eating area 12 $m^2$
- Training material storage area 32 $m^2$
- Office/general storage area 14 $m^2$
- Male and Female toilets 6 $m^2$
- Unisex disabled toilet 6 $m^2$

Kitchenette lunch room facilities:
- Kitchenettes x 2
- Tables and chairs to accommodate 15
- Tea, coffee and condiments provided
- Chilled and filtered water or boiled water provided
- Microwave, pie oven, toaster and sandwich maker
- Barbecue

Recycling facilities:
- Paper and cardboard
- Mixed recycling
- Compost
- Scrap copper
- Scrap metal
- Batteries, phones and printer cartridges
- '2nd life' electrical and office equipment recycling area

Learner facilities:
- Library of electrical theory text books for borrowing
- Magazine rack with industry specific publications
- Hands on display shelves and table
- Notice board x 2

Office furniture:
- Desks x 4
- Desk draws x 8
- Compactus
- 4 draw filing cabinets x 8
- Cabinets x 4
- Shelves x 5

Office equipment:
- Cross cut shredder x 2
- Book binding machine
- A3/A4 guillotine
- A3 and A4 laminator
- Office equipment – various
- Document protectors – various

Information technology:
- Desktop computers with dual monitors x 4
- Class room trainer computers with dual monitors and AV connections x 3
- Office laptops x 2
- Learner laptops x 16
- Server rack

Printing and photocopying:
- Colour photocopiers with finishers x 2
- Black and white photocopiers with finishers x 2
- Colour printers x 4
- Colour printer/scanner x 1

**Physical resources – Solar training room**

Purpose built room:
- Tables and chairs to accommodate 16 learners
- Large whiteboard
- Moveable white board
- Trainer computer with dual monitor, internet access, speakers and fixed AV digital projector
- Storage cabinets x 5

Areas for mounting solar panels, cabling, isolators and inverters:
- Tile roof
- Tin roof
- Flat roof

Solar boards for live commissioning

| | |
|---|---|
| Solar training resources:<br>• 24 V, 3 phase supply to trainer display area<br>• 8 x 'Solar machines for measuring voltage and current output of panels at different tilt angles, orientations, shading and wave lengths.<br>• Sunpath solar diagram finder<br>• Pyronometer, (irradiance meter)<br>• Practical demonstration equipment x 5 kits<br>• Storage cabinets | • 2 x moveable boards with Solar panels mounted on them for live commissioning in sunlight, including:<br>◦ Extension lead for connecting AC side and<br>◦ feeding power into grid<br>◦ 600 x 600 metal box with fuse, kW.hr meter and switch board<br>◦ AC isolator<br>◦ Inverter<br>◦ Array Main Switch (DC isolator)<br>◦ Roof isolator<br>◦ 4 x solar panels |
| Solar boards for testing<br>• 2 x moveable boards with Solar panels mounted on them for testing<br>• Each board has 12 different faults that can be added into the circuit for testing and fault finding practice | |

## 16. Strategies for ‘stand-alone’ single units or skill sets:

In accordance with this Training and Assessment Strategy

## 17. Strategies for ‘assessment only’ pathways:

Assessment only pathways not used for these units of competency.

Recognition of Prior Learning in accordance with Policy & Procedure – 2 Credit Transfer & Recognition of Prior Learning

## 18. Abbreviations:

**Acronyms and initialisms used:**

- ACT: Australian Capital Territory
- AQF: Australian Qualifications Framework
- AVETMISS: Australian Vocational Education and Training Management Information Statistical Standard
- AQF: Australian Qualifications Framework
- CT: Credit Transfer
- GETS: Global Energy Training Solutions
- RPL: Recognition of Prior Learning
- RTO: Registered Training Organisation
- USI: Unique Student Identifier
- VET: Vocational Education and Training

## 19. Version Control:

| Version | Date of release | Author | Authorised by | Position | Reason for change |
|---|---|---|---|---|---|
| V1 | 29/09/2015 | Ben Murphy | Ben Murphy | Proprietor / Chief Executive | Initial release as part of TAS 1 Electrical |

| | | | | | |
|---|---|---|---|---|---|
| V2 | 29/02/2016 | Ben Murphy | Ben Murphy | Proprietor / Chief Executive | Version 2 release as part of TAS 1 Electrical |
| V3 | 26/04/2017 | Ben Murphy | Ben Murphy | Proprietor / Chief Executive | Released as separate Training and Assessment Strategy<br>Added, updated and reworded content |
| V3.1 | 04/06/2017 | Ben Murphy | Ben Murphy | Proprietor / Chief Executive | Added 3rd Unit of Competency - UEENEEK135A in preparation for Change of Scope Application |
| V3.2 | 04/07/2017 | Ben Murphy | Ben Murphy | Proprietor / Chief Executive | Reworded: Mode of delivery<br>Changed 'Licensed outcome' to 'Accreditation outcome' |
| V3.3 | 26/01/2018 | Ben Murphy | Ben Murphy | Proprietor / Chief Executive | Updated fees and duration |