



**Australian Government**

# **UEERE0053 Assess energy loads and uses for energy efficiency in industrial properties and enterprises**

**Release: 1**

# **UEERE0053 Assess energy loads and uses for energy efficiency in industrial properties and enterprises**

## **Modification History**

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

This unit replaces and is not equivalent to UEERE0004 Assess energy loads and uses for energy efficiency in industrial properties and enterprises. Modifications include:

- Update to application
- Prerequisite changed
- Element titles amended
- Performance criteria removed and added
- Range of conditions updated
- Updates to performance and knowledge evidence requirements and CVIG content developed.

## **Application**

This unit involves the skills and knowledge required to assess energy loads, undertake energy audits of industrial properties and enterprises, evaluate the energy efficiency of the facilities and make recommendations on design implementations.

It includes working safely, applying knowledge of industrial electrical installations and components and their operating parameters, gathering and analysing data, applying problem-solving techniques, and developing and documenting engineering solutions.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

## **Pre-requisite Unit**

UEERE0068 Develop strategies to address sustainability issues for electrical installations

## **Competency Field**

Renewable Energy

## **Unit Sector**

Electrotechnology

## Elements and Performance Criteria

### ELEMENTS

### PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

#### **1 Prepare to assess energy efficiency of industrial properties and enterprises**

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements are identified and applied
- 1.2** Organisational processes and procedures relevant to energy efficiency assessment are identified, interpreted, and applied
- 1.3** Extent of the energy assessment is determined from analysis of facilities, orientation and floor plans, building structure plans, energy accounts and situation reports in consultation with relevant person/s and in accordance with organisational procedures
- 1.4** Energy assessment activities/audits are planned to meet scheduled timelines in consultation with others involved in the work
- 1.5** Strategies are determined to ensure energy efficient solutions are developed and implemented in accordance with industry standards and organisational procedures

#### **2 Assess and evaluate energy efficiency of industrial properties and enterprises**

- 2.1** Information on energy use, any onsite energy generation and energy costs are gathered and recorded
- 2.2** Main sources of energy use are identified, measured and recorded
- 2.3** Information about activities undertaken at facility, and their impact on energy efficiency, is gathered and recorded
- 2.4** Industry/government initiatives/programs to support energy efficiency are identified and evaluated
- 2.5** Energy loads are considered when developing energy efficient strategies to address and minimise energy use
- 2.6** Parameters, specifications and performance requirements in relation to energy use are set in accordance with

|   |                                                                                       |                                                                                                                                                                                                  |
|---|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |                                                                                       | organisational procedures                                                                                                                                                                        |
|   | 2.7                                                                                   | Approaches/strategies to resolving and minimising energy use are analysed to provide the most effective solutions in accordance with organisational procedures                                   |
|   | 2.8                                                                                   | Energy efficiency, cost savings and emission reductions from implementing energy efficiency measures are estimated and documented                                                                |
| 3 | <b>Document energy efficiency assessment of industrial properties and enterprises</b> |                                                                                                                                                                                                  |
|   | 3.1                                                                                   | Proposed solutions/strategies to minimise energy use are tested to determine their effectiveness and modified, as required, in accordance with organisational procedures                         |
|   | 3.2                                                                                   | Adopted solutions are documented in accordance with organisational procedures, including instructions for implementation that incorporate the risk control measures to be followed               |
|   | 3.3                                                                                   | Authorised person/s required to implement solutions are coordinated in accordance with regulatory requirements and organisational procedures                                                     |
|   | 3.4                                                                                   | Justification for strategies used to minimise energy use is documented for inclusion in work/project development records in accordance with professional standards and organisational procedures |

## Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Carrying out energy assessments and documenting energy efficiency strategies must include at least the following:

- two manufacturing/industrial properties/enterprises.

## Unit Mapping Information

This unit replaces and is not equivalent to UEERE0004 Assess energy loads and uses for energy efficiency in industrial properties and enterprises.

## Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

# **Assessment Requirements for UEERE0053 Assess energy loads and uses for energy efficiency in industrial properties and enterprises**

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- Update to application
- Prerequisite changed
- Element titles amended
- Performance criteria removed and added
- Range of conditions updated
- Updates to performance and knowledge evidence requirements and CVIG content developed.

## **Performance Evidence**

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two occasions and include:

- applying relevant organisational procedures and practices, work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- performing energy use assessments and identifying efficiency improvements for industrial properties and enterprises in accordance with the range of conditions
- documenting and presenting final recommendations.

## **Knowledge Evidence**

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of. Additional advice and definitions for some items is provided in the UEE Training Package Companion Volume Implementation Guide (CVIG).

- relevant WHS/OHS legislated requirements and relevant organisational procedures and practices, job safety assessments or risk control processes and types of personal protective equipment (PPE) to be used when conducting on-site assessments of industrial properties and enterprises energy use
- alternative energy production and storage technologies applicable to industrial properties and enterprises
- energy ratings and power consumption of appliances and equipment and how they are

calculated

- energy types and units of measurement
- key requirements of relevant codes, standards, regulations and government incentive programs for industrial property and enterprise energy efficiency
- major systems and other sources of industrial property and enterprise energy use including:
  - cooking
  - refrigeration
  - washing and drying
  - home entertainment and home office equipment
  - heating, cooling and ventilation
  - internal and external appliances
  - swimming pools and spas
  - water heating
  - water pumps
  - building management systems
  - use of renewables and energy storage
  - electric vehicles
  - process heat/water/steam
  - compressed air
  - power factor correction
  - peak demand charge
  - manufacturing equipment
  - variable speed drives
  - industrial/commercial lighting
  - industrial/commercial ventilation
- methods for interpreting energy bills including: actual and estimated bills, plans and tariffs
- strategies for improving industrial property and enterprise energy efficiency including impact of building design, proximity and orientation on heating/cooling energy use, upgrade options and behavioural changes
- trends in energy use and emissions
- water supply, use, auditing services and design
- greenhouse gas emissions, ecological impacts and resource use
- energy management, legislation and regulation relevant to industrial properties and enterprises
- energy auditing and practice
- energy management
- power and energy data monitoring and recording
- lighting services and efficient design
- thermal performance and climate control
- food storage and preparation services and efficient design
- water heating services and efficient design

- entertainment and administration services and efficient design
- cleaning services and efficient design
- pumping systems (and pools) and efficient design
- smart metering solutions
- renewable energy (solar PV/energy storage)
- types and uses of energy measuring tools.

## **Assessment Conditions**

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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