



Australian Government

UEERA0056 Monitor and adjust refrigeration energy management systems

Release: 1

UEERA0056 Monitor and adjust refrigeration energy management systems

Modification History

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

Application

This unit involves the skills and knowledge required to monitor and adjust refrigeration energy management systems.

It includes setting up and adjusting energy management systems on refrigeration systems for effective energy use. It also includes working safely, testing and analysing system parameters, adjusting equipment and controls, following workplace procedures, and documenting final operating parameters and settings.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, skills and knowledge described in this unit require a relevant contract of training, such as an Australian Apprenticeship.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to refrigeration, air conditioning or electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Permits may also be required for some work environments, such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEECD0016 Document and apply measures to control WHS risks associated with electrotechnology work

UEERA0059 Prepare and connect refrigerant tubing and fittings

UEERA0036 Establish the basic operating conditions of vapour compression systems

UEERA0035 Establish the basic operating conditions of air conditioning systems

UEERA0050 Install refrigerant pipe work, flow controls and accessories

UEERA0094 Verify functionality and compliance of refrigeration and air conditioning installations

UEERA0081 Select refrigerant piping, accessories and associated controls

UEERA0031 Diagnose and rectify faults in air conditioning and refrigeration control systems

UEERA0092 Solve problems in low voltage refrigeration and air conditioning circuits

UEERL0005 Locate and rectify faults in low voltage (LV) electrical equipment using set procedures

UEERL0004 Disconnect - reconnect electrical equipment connected to low voltage (LV) installation wiring

UEERL0001 Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply

UEERL0002 Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c.

Competency Field

Refrigeration and air-conditioning

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to monitor and adjust energy management systems on refrigeration system

PERFORMANCE CRITERIA

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

- | | |
|------------|---|
| 1.1 | WHS/OHS requirements and workplace procedures for a given work area are identified and applied |
| 1.2 | WHS/OHS risk control measures and workplace procedures are followed in preparation for refrigeration system work |
| 1.3 | Safety hazards not previously identified are noted on job safety assessment and established risk control measures |

- implemented
- 1.4** Appropriate person/s is consulted to ensure refrigeration system work is coordinated effectively with others involved on the worksite
 - 1.5** Refrigeration system energy parameters are identified by reviewing system specifications and component technical data
 - 1.6** Tools, equipment and testing devices needed to carry out work are obtained and checked for correct operation and safety
 - 1.7** Preparatory work is checked to ensure no damage has occurred and complies with job requirements
 - 1.8** Need to test or measure live electrical work is determined in accordance with WHS/OHS requirements and workplace safety procedures
 - 1.9** Circuits are checked and isolated in accordance with WHS/OHS requirements and workplace procedures
- 2 Monitor and adjust energy management systems on refrigeration system**
- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out refrigeration system work are followed
 - 2.2** Testing/measuring devices are connected and set up in accordance with job requirements and refrigeration system
 - 2.3** Monitoring and adjustments are made to equipment components and controls to provide effective energy use in accordance with refrigeration system specifications and regulatory requirements
 - 2.4** Unplanned situations are responded to in accordance with workplace procedures, discussions with appropriate person/s and job specifications and requirements in a manner that minimises risk to personnel and equipment
 - 2.5** Refrigeration system monitoring and adjusting is carried out efficiently without waste of materials or damage to apparatus, the surrounding environment or services using sustainable energy principles
- 3 Complete and report monitoring adjusting**
- 3.1** WHS/OHS risk control work completion measures and

activities

workplace procedures are followed

- 3.2 Worksite is cleaned and made safe in accordance with workplace procedures
- 3.3 Monitoring and adjustment settings are documented and appropriate person/s notified in accordance with workplace 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.

Monitoring and adjusting refrigeration and energy management systems must include at least the following:

- two different types of energy management systems for refrigeration systems

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ121A Monitor and adjust refrigeration energy management systems.

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 UEERA0056 Monitor and adjust refrigeration energy management systems

Modification History

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

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 one occasion and include:

- identifying system energy parameters
- monitoring and adjusting system components and controls to provide effective energy use
- ensuring system energy use is accordance with requirements
- documenting adjustment settings with established procedures
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) workplace procedures and practices requirements, including using risk control measures
- applying sustainable energy principles and practices
- monitoring and adjusting energy management systems on refrigeration system
- planning, monitoring and adjusting energy management systems on refrigeration system.

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:

- energy management systems for commercial refrigeration, safe working practices and relevant standards, codes and regulations, including:
 - functions of a commercial refrigeration energy management system, including:
 - general control function
 - inputs
 - outputs
 - communications
 - graphing
 - supervising
 - data logging
 - scheduling
 - alarms

- power consumption
- energy management system control components, including:
 - identify components
 - pressure sensors
 - temperature sensors
 - time clocks
 - humidity sensors
 - liquid level sensors
 - leak detector sensor
 - function and operating parameters of components
 - pressure sensors
 - temperature sensors
 - time clocks
 - humidity sensors
 - liquid level sensors
 - leak detector sensors
- installation requirements and considerations, including:
 - installation of controller(s)
 - installation of refrigerant leak detector
 - systems
 - installation of accessory boards
 - installation of pressure transducers and wiring
 - installation of temperature sensors and wiring
 - control wiring considerations
- system design and applications, including:
 - control components to suit given applications
 - system operating parameters
 - pressure sensors
 - temperature sensors
 - time clocks
 - humidity sensors
 - liquid level sensors
 - leak detector sensors
 - defrost
 - alarm panel
- programming a control system, including:
 - display terminal and keypad functions
 - calibration of sensors
 - changing original settings

- program a given set of parameters to suit an application
- component testing and fault finding, including:
 - troubleshooting
 - testing of components
- relevant job safety assessments or risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures.

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.

Links

Companion Volume implementation guides are found in VETNet - -

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