



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **ICTSUS4183A Install and test renewable energy system for ICT networks**

**Release: 1**

## ICTSUS4183A Install and test renewable energy system for ICT networks

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	<p>This unit describes the performance outcomes, skills and knowledge required to install a renewable energy system and integrate it into the network.</p> <p>No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.</p>
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### Application of the Unit

<b>Application of the unit</b>	<p>This unit is for technical staff who install ICT networks powered by renewable energy solutions. This results in more efficient systems with cost reduction while meeting sustainability targets.</p>
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### Licensing/Regulatory Information

Refer to Unit Descriptor

### Pre-Requisites

<b>Prerequisite units</b>		

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan to install renewable energy system	1.1. Prepare for given work according to <i>relevant legislation, codes, regulations and standards</i> 1.2. Arrange access to site according to required procedure 1.3. Assess extent of system implementation using feasibility report and <i>organisational guidelines</i> 1.4. Produce a report to meet the <i>customer</i> and <i>organisational requirements</i> 1.5. Liaise with <i>appropriate person</i> to obtain approval for the plans with recommendations 1.6. Determine and source <i>renewable energy components</i> according to the agreed plan
2. Install and test renewable energy system	2.1. Install and configure components according to occupational health and safety ( <i>OHS</i> ) and <i>environmental requirements</i> , plan, manufacturer's and organisational requirements 2.2. Identify and resolve problems 2.3. Integrate the renewable system into the network 2.4. Test and enhance system performance to meet organisational requirements
3. Complete documentation and clean up worksite	3.1. Produce an evaluation report on the actual cost-benefits of implementing the renewable energy system to the organisation 3.2. Provide a support manual for the customer 3.3. Record all test results and records for the customer 3.4. Notify customer and obtain sign off

## Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
<b>Required skills</b>
<ul style="list-style-type: none"> <li>• analytical skills to evaluate information from reports</li> <li>• communication skills to liaise with internal and external personnel on technical, operational and business related matters</li> </ul>

## REQUIRED SKILLS AND KNOWLEDGE

- literacy skills to:
  - interpret technical renewable energy systems' installation manuals
  - process and present written and verbal information to a diverse range of people
  - write reports, design solutions and recommendations in required formats
- numeracy skills to assess cost benefits and renewable energy options
- problem solving skills to resolve installation problems
- research skills to determine requirements
- safety awareness skills to:
  - apply precautions and required action to minimise, control or eliminate hazards that may exist during work activities
  - select and use required personal protective equipment conforming to industry and OHS standards
  - work systematically with required attention to detail without injury to self or others, or damage to goods or equipment
- technical skills to evaluate alternate energy systems and their compatibility with existing power sources

### Required knowledge

- broad knowledge of systems diagnostic features
- business processes
- client business domain, business function and organisation
- compatibility issues and resolution procedures
- configuration of internet protocol (IP) networks
- current industry accepted hardware products and renewable energy system products
- customer and business liaison
- documenting technical specifications
- linkage between processes
- technologies:
  - alternate energy, such as solar, wind, chemical
  - areas of the hardware relevant to configuration and testing
  - installation procedures
  - renewable energy system relevant to configuration and testing
  - renewable energy systems' functionality
  - set-up and configuration procedures
- vendor specifications and requirements for component installation

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<b>Overview of assessment</b>	
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> <li>• ascertain and meet client requirements for installation of a renewable energy system hardware</li> <li>• plan and connect the hardware components according to vendor and technical specifications.</li> </ul>
<b>Context of and specific resources for assessment</b>	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> <li>• site on which renewable energy solutions can be implemented</li> <li>• renewable energy system currently used in industry</li> <li>• relevant documentation, feasibility studies, equipment manuals and other site related documentation.</li> </ul>
<b>Method of assessment</b>	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> <li>• direct observation of the candidate carrying out installation and testing activities</li> <li>• review of plans completed by the candidate for different sites</li> <li>• oral or written questioning to assess knowledge of legislation and safety procedures.</li> </ul>
<b>Guidance information for assessment</b>	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:</p> <ul style="list-style-type: none"> <li>• ICTSUS5187A Implement server virtualisation for a sustainable ICT system</li> <li>• ICTSUS4185A Install and test power management software</li> <li>• ICTSUS4184A Install and test power saving hardware</li> <li>• ICTSUS4186A Install thin client applications for Power over Ethernet.</li> </ul>

**EVIDENCE GUIDE**

	<p>Aboriginal people and other people from a non-English speaking background may have second language issues.</p> <p>Access must be provided to appropriate learning and assessment support when required.</p> <p>Assessment processes and techniques must be culturally appropriate, and appropriate to the oral communication skill level, and language and literacy capacity of the candidate and the work being performed.</p> <p>In all cases where practical assessment is used it will be combined with targeted questioning to assess required knowledge. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency.</p> <p>Where applicable, physical resources should include equipment modified for people with special needs.</p>
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**Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

***Relevant legislation, codes, regulations and standards*** include:

- Australian Communications Industry Forum (ACIF) standards and codes
- AS Communications Cabling Manual (CCM) Volume 1
- AS/NZS 3000:2007
- AS/NZS 3080:2003
- AS/NZS 3084:2003

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• AS/NZS 3085.1:2004</li> <li>• AS/NZS IEC 61935.1:2006</li> <li>• AS/NZS IEC 61935.2:2006</li> <li>• AS/NZS ISO/IEC 14763.3:2007</li> <li>• AS/NZS ISO/IEC 15018:2005</li> <li>• AS/NZS ISO/IEC 24702:2007</li> <li>• cabling security codes and regulations</li> <li>• contract law</li> <li>• National Association of Testing Authorities (NATA) requirements</li> <li>• OHS</li> <li>• regulated or industry codes of practice including appropriate Australian Communications and Media Authority (ACMA) technical standards</li> <li>• technical standards AS/ACIF S008:2006 and AS/ACIF S009:2006</li> <li>• Trade Practices Act.</li> </ul>
<i>Organisational guidelines</i> may include:	<ul style="list-style-type: none"> <li>• budget constraints</li> <li>• communication methods</li> <li>• dispute resolution</li> <li>• documenting procedures and templates</li> <li>• financial control mechanisms</li> <li>• infrastructure</li> <li>• operational costs.</li> </ul>
<i>Customer</i> may include:	<ul style="list-style-type: none"> <li>• department within the organisation</li> <li>• government department</li> <li>• person within a department</li> <li>• private organisation</li> <li>• third party.</li> </ul>
<i>Organisational requirements</i> may include:	<ul style="list-style-type: none"> <li>• diagnostic policy</li> <li>• preventative maintenance</li> <li>• problem solution processes</li> <li>• roles and technical responsibilities in the IT department</li> <li>• vendor and product service level support agreements</li> <li>• work environment.</li> </ul>
<i>Appropriate person</i> may include:	<ul style="list-style-type: none"> <li>• authorised business representative</li> <li>• infrastructure administrator</li> </ul>



<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>• network administrator</li> <li>• power systems manager</li> <li>• property manager</li> <li>• supervisor.</li> </ul>
<i>Renewable energy components</i> may include:	<ul style="list-style-type: none"> <li>• converter</li> <li>• deep cycle gel cells</li> <li>• inverter</li> <li>• regulator</li> <li>• solar cells</li> <li>• solar panels</li> <li>• wind generator.</li> </ul>
<i>OHS and environmental requirements</i> relate to:	<ul style="list-style-type: none"> <li>• decommissioning and isolating worksite and lines prior to commencement</li> <li>• identifying other services, including power and gas</li> <li>• safety equipment <ul style="list-style-type: none"> <li>• flashing lights</li> <li>• gas and other hazard detection equipment</li> <li>• safety barriers</li> <li>• trench guards</li> <li>• warning signs and tapes</li> <li>• witches hats</li> </ul> </li> <li>• safe working practices, such as the safe use and handling of: <ul style="list-style-type: none"> <li>• asbestos</li> <li>• chemicals</li> <li>• materials</li> <li>• tools and equipment</li> <li>• work platforms</li> </ul> </li> <li>• special access requirements</li> <li>• suitable light and ventilation</li> <li>• environmental considerations: <ul style="list-style-type: none"> <li>• clean-up management</li> <li>• clean-up protection</li> <li>• dust</li> <li>• noise</li> <li>• stormwater protection</li> <li>• waste management.</li> </ul> </li> </ul>

## Unit Sector(s)

<b>Unit sector</b>	Telecommunications
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## Co-requisite units

<b>Co-requisite units</b>		

## Competency field

<b>Competency field</b>	Sustainability
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