ENERGY & ENVIRONMENT AWARDS

Skills for a greener world

EEA Level 3 End-point Assessment for Power Network Craftsperson
(All pathways)

# Specification

QAN 610/6023/9
ST0156 V1.0 V1.1

# Specification for

## EEA Level 3 End-point Assessment for Power Network Craftsperson

**QAN 610/6023/9**


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# Updates to this specification

Since the first publication of Energy & Environment Awards Power Network Craftsperson (PNC) specification, the following updates have been made

| Version | Date first published | Section updated | Page(s) |
|---|---|---|---|
| v4.0 | August 2025 | Rebranded | All |
| v3.0 | May 2023 | Rebranded | All |
| v2.0 | April 2023 | Revised layout | All |
| v1.0 | January 2022 | First published | All |
| | | Previously published as PNC Handbook | |

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## Section 1: At a Glance EPA Summary

| | |
|---|---|
| Qualification name | EEA Level 3 End-point Assessment for Power Network Craftsperson |
| Ofqual qualification number | 610/6023/9 |
| Standard reference | ST0156 |
| Assessment plan | AP03 |
| Standard title | Power Network Craftsperson |
| Pathways | • Overhead Lines<br>• Underground Cables<br>• Substation Fitting |
| Level | 3 |
| Gateway pre-requisites submitted to Energy & Environment Awards | Apprentice has achieved English and mathematics at level 2 |
| On-programme duration | Typically 30 months |
| Gateway readiness | Apprentice has met all Gateway pre-requisites. Employer completes, signs and submits Gateway Eligibility Review (GER) form to Energy & Environment Awards |
| End-point assessment duration | Typically 6 months after the gateway |
| Order of end-point assessment methods | The Technical Interview must take place after the successful completion of the Trade Test assessment and during the final month of the apprenticeship |
| End-point assessment methods and component grading | Industry context 'Trade Test': Fail or Pass<br>Technical interview: Fail or Pass<br>Behaviour and Progress Final Assessment: Fail, Pass or Distinction |

| | |
|---|---|
| Overall Grading | Fail, Pass, Distinction |
| Certification | Energy & Environment Awards request Apprenticeship completion certificates from the ESFA |

## Objective

The purpose of the Power Network Craftsperson (PNC) end-point assessment (EPA) is to test that an apprentice is fully capable of doing their job before they receive their apprenticeship certificate. It also helps to demonstrate that what an apprentice has learned can be applied in the real world.

There are three specialisms within the occupation:

- working on overhead lines – wood pole and steel tower
- working on underground cables – high and low voltage
- working in substation fitting.

Once the apprentice has completed the PNC end-point assessment requirements successfully and has been certified they may provisionally achieve craftsperson status. Apprentices must successfully receive a Company Authorisation in order to gain a pass in the apprenticeship. A Company Authorisation, in this instance, is defined as permission to operate on the power network in accordance with their level of authorisation.

## Professional Recognition

Successful apprentices will be eligible for Engineering Technician (Eng. Tech.) professional registration with the Institution of Engineering & Technology (IET).

## Gateway Readiness

The employer must be satisfied that the apprentice is consistently working at, or above, the level of the occupational standard. Gateway pre-requisites are listed in the summary table above.

## Recognition of Prior Learning (RPL)

Energy & Environment Awards does not recognise any apprentices' prior learning (RPL) or prior achievement (RPA) when awarding end-point assessment qualifications.

Please refer to Energy & Environment Awards RPL and RPA policy at https://energyenvironmentawards.co.uk/policies-and-fees/

In order for Energy & Environment Awards to award an end-point assessment qualification, the apprentice must successfully complete all required assessment components with Energy & Environment Awards. This means that:

- each of the EPA components must be completed in full with Energy & Environment Awards
- where an apprentice transfers to Energy & Environment Awards from another EPAO they have to undertake the entire EPA with Energy & Environment Awards
- components of the EPA cannot be certificated in isolation
- This does not affect the Gateway requirements which must be met in order for an apprentice to be eligible for end-point assessment.
- This does not affect any reasonable adjustments that may be granted.

# Section 2: Mapping of KSBs to Assessment Methods

## Overview

The tables below introduce the elements of the standard and the referencing system used by Energy & Environment Awards. It provides and ‘at-a-glance’ view of which assessment method is used to assess each of the Knowledge, Skills and Behaviours statements.

The standard is divided into core Knowledge, Skills and Behaviours, plus specialist related skills.

- Core Knowledge (CTK)
- Core Skills (CS)
- Core Behaviours (CB)
- Specific Skills (OL, UC or SF)

The end-point assessment methods as are:

- Industry context ‘trade test’
- Technical interview
- Behaviour and Progress Final Assessment.

| Core Requirements: Technical Knowledge | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **CTK1** | Electrical testing and the associated procedures needed to establish the condition of the plant, equipment, network and the actions needed as a result of the tests | | ✓ | ✓ |
| **CTK2** | Electrical theories involved in the practical application of building and maintenance of electrical power networks | | ✓ | ✓ |
| **CTK3** | Relevant electrical/mechanical principles and how they are applied in work processes and procedures | | ✓ | ✓ |
| **CTK4** | Mathematical calculations used to support design, construction and ongoing operational maintenance activities related to power engineering | | ✓ | ✓ |
| **CTK5** | Current Health, Safety and Environmental legislation and regulations applicable to work in the power sector | | ✓ | ✓ |
| **CTK6** | Company rules, policies and procedures as defined by the employer | | ✓ | ✓ |

| Core Requirements: Skills | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **CS1** | Work with focus and clear purpose in all weather conditions, covering 24/7 operations, sometimes working alone and safely adapt working methods to reflect changes in working environments | | ✓ | ✓ |
| **CS2** | Work on customer premises/property and on customer installations showing appropriate care and respect | | | ✓ |
| **CS3** | Use tools and equipment to construct and maintain electrical infrastructure across a range of voltages | | ✓ | |
| **CS4** | Take personal responsibility for maintaining safety standards and achieving job objectives | | ✓ | ✓ |
| **CS5** | Use a variety of appropriate communication methods to interact with others to give/receive information accurately, in a timely, positive and professional manner | | ✓ | ✓ |
| **CS6** | Identify that something is wrong/likely to go wrong and the appropriate solution(s) within current expertise | | ✓ | ✓ |
| **CS7** | Achieve individual and team tasks which align to overall work objectives, be self-motivated and disciplined in the approach to work tasks | | ✓ | |

| Core Requirements: Skills | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **CS8** | Prepare and sequence equipment and tasks in a certain order to a specific rule(s) | | ✓ | ✓ |
| **CS9** | Undertake standby duties to provide 24 hour cover to the network in fault situations requiring diagnostic testing procedures to analyse and calculate system parameters and rectification procedures | | ✓ | ✓ |

| Core Requirements: Behaviours | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **CB1** | Work well with people from different trades/disciplines, backgrounds and expertise to accomplish an activity safely and on time and meet customer requirements | ✓ | ✓ | |
| **CB2** | Deliver a polite, courteous professional service to all customers and members of the public | ✓ | ✓ | |
| **CB3** | Be risk aware showing the desire to reduce risks through systematic monitoring & checking information and the strict compliance with appropriate rules, demonstrating: | ✓ | ✓ | |
| **CB4** | Situational Awareness - the impact of changing circumstances on an activity | ✓ | ✓ | |
| **CB5** | Concentration on task – identify and deal appropriately with distractions to enable tasks to be achieved | ✓ | ✓ | |

| Specific Skills: Overhead Lines<br>The transmission and distribution overhead lines area involves working predominantly on wood poles and steel tower structures, showing the ability to: | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **OL1** | Adhere to safety practices and procedures, carry out risk assessments and checking the structures to be climbed and the working conditions while working at height | | ✓ | ✓ |
| **OL2** | Carry out excavations, erect wood poles, steel towers and install their support mechanisms, | | ✓ | ✓ |
| **OL3** | Climb poles and steel towers to install, maintain, test, repair and dismantle overhead line plant and equipment safely at height Use electrical theories and principles to use test equipment for voltage, current and earth resistance testing to maintain the integrity of the network | | ✓ | ✓ |
| **OL4** | Consult design specifications to tension and terminate conductors, erect and assemble steel work and fittings | | ✓ | ✓ |
| **OL5** | Install and connect electrical transformers, switchgear, circuit breakers and other associated equipment. | | ✓ | ✓ |
| **OL6** | Drive vehicles equipped with tools and materials to job sites including mobile elevated work platforms | | ✓* | |

| Specific Skills: Overhead Lines<br>The transmission and distribution overhead lines area involves working predominantly on wood poles and steel tower structures, showing the ability to: | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **OL7** | Apply mechanical knowledge to use winches, drum handlers, pull lifts, tirfors and tensioning devices | | ✓ | |
| **OL8** | Carry out electrical switching procedures on high and low voltage networks, operating switchgear, fuses and making and breaking live conductor connections | | ✓ | |
| **OL9** | Organise and control work teams to carry out maintenance operations on overhead line plant and apparatus | | ✓ | ✓ |

*Where applicable

| Specific Skills: Underground Cables<br>Undertaking work in excavations at differing depths on underground power cables showing the ability to: | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **UC1** | Adhere to safety practices and procedures, carry out risk assessments, check the condition of excavations and install and maintain barrier systems to protect the work area | | ✓ | ✓ |
| **UC2** | Carry out excavations by hand and by the use of mechanical equipment to install cables in trenches | | | ✓ |
| **UC3** | Use electrical/mechanical knowledge to joint and terminate a range of cable sizes and types of joints using cable connectors across both Low and High Voltage cables networks to design specifications | | ✓ | ✓ |
| **UC4** | Install and remove excavation shuttering to support the sides of excavations and maintain a safe work environment | | | ✓ |
| **UC5** | Use technical knowledge to operate electronic location equipment to identify and locate underground cables | | ✓ | ✓ |
| **UC6** | Use electrical theories and principles to carry out fault diagnosis on underground cable networks | | ✓ | ✓ |
| **UC7** | Drive vehicles equipped with tools and materials to job sites and operate powered ground breakers | | ✓* | |

| Specific Skills: Underground Cables<br>Undertaking work in excavations at differing depths on underground power cables showing the ability to: | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **UC8** | Carry out electrical switching procedures on low voltage networks, operating switchgear, links and making and breaking live conductor connections | | ✓ | ✓ |
| **UC9** | Organise and control the resources required to carry out the installation of cables, joints and link boxes | | ✓ | ✓ |

*Where applicable

| Specific Skills: Substation Fitting<br>Working in and around substations means showing the ability to: | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **SF1** | Adhere to safety practices and procedures, carry out risk assessments, check the condition of the work site | | ✓ | ✓ |
| **SF2** | Use electrical/mechanical knowledge and skills to install, maintain and dismantle a wide variety of high voltage plant and apparatus including transformers, switchgear, cable terminations and other associated equipment. | | ✓ | ✓ |
| **SF3** | Build and install high voltage substations safely in both urban and rural locations | | ✓ | ✓ |
| **SF4** | Use technical knowledge to carry out substation inspections, condition monitoring and reporting | | ✓ | ✓ |
| **SF5** | Apply electrical theories and principles to use electronic equipment to carry out diagnostic fault finding procedures | | ✓ | ✓ |
| **SF6** | Maintain sub-station transformers and switchgear by replacing insulating oils and other insulating mediums | | ✓ | ✓ |
| **SF7** | Inspect and maintain substation earthing, security equipment, telecommunication devices and alarm systems | | ✓ | ✓ |

| Specific Skills: Substation Fitting<br>Working in and around substations means showing the ability to: | | Behaviour and Progress | Trade Tests | Technical Interview |
|---|---|---|---|---|
| **SF8** | Drive vehicles equipped with tools and materials to job sites including using mobile elevated work platforms | | ✓* | |
| **SF9** | Carry out electrical switching procedures on high and low voltage networks, operating switchgear, fuses and carrying out live working operations | | ✓ | ✓ |

*Where applicable

## Section 3: Power Network Craftsperson Standard Knowledge Requirements

If a qualification (or part thereof) is to be recognised as able to provide the knowledge requirements supporting and underpinning the apprenticeship in Power Network Engineering it must include the content identified in the table below.

The knowledge requirements support all three pathways: Overhead Lines, Underground Cables, and Substation Fitting.

| Knowledge | Amplification and Guidance |
|---|---|
| **Practical mathematics** | Knowledge of mathematical principles to support the calculation and understanding of everyday and real-world situations found during the practical application of working techniques in the power sector, including:<br>• Selection and application of mathematical techniques to add, subtract, multiply and divide numbers<br>• Mathematical reasoning, making deductions and inferences, and drawing conclusions<br>• Use of the terms ‘square’, ‘positive square root’ and ‘negative square root’, ‘cube’ and ‘cube root’<br>• Use of decimal notation and recognition that each terminating decimal is a fraction<br>• Use of percentages, fractions, decimals, percentages and ratios, as operators<br>• Use of mathematics to calculate the effects of electrical principles on cables/conductors<br>• Use of mathematics to calculate the effects of prospective fault current<br>• Use of mathematics principles to gain a practical understanding of single and three-phase theory. |

| Knowledge | Amplification and Guidance |
|---|---|
| **Materials technology and science** | Knowledge of materials technology and scientific principles to support understanding of how plant and equipment operates to support the practical application of working techniques in the power sector, including:<br>• Properties of materials including conductors, insulating and structural materials<br>• Torsion/breaking strength of materials<br>• Heat transfer of materials<br>• The scientific effect of factors on materials - heat, current, corrosion, stress and bending<br>• The use of formulae to support the understanding of how materials change/react |
| **Mechanical engineering** | Knowledge of mechanical principles to support understanding of how plant and equipment operates to support the practical application of working techniques in the power sector, including:<br>• Use of gears, linkages and pulleys<br>• Assembling working structures and mechanical procedures<br>• Principles of hydraulics, pneumatics and thermodynamics<br>• Principles of lifting, moving and tensioning assemblies<br>• The use of electrical formulae to support the understanding of how equipment operates<br>• Interpretation of mechanical/design specifications to support structural analysis. |
| **Electrical engineering** | Knowledge of electrical theory and principles to support understanding of how plant and equipment operates to support the practical application of working techniques in the power sector, including: |

| Knowledge | Amplification and Guidance |
|---|---|
| | • How electricity is produced, the effects of electromagnetism, voltage, current and resistance<br>• The use of electrical formulae to support the understanding of how equipment operates<br>• Electrical testing and measurement, and interpretation of results<br>• Electrical control systems – field automation/protection/isolation, electrical switching and earthing<br>• Principles of electrical induction, capacitance, arcing and shock<br>• Electrical safe systems of work – electrical rules, regulations, safety documentation, authorisations, and procedures. |
| **Health, safety and the environment in the power sector** | Knowledge of health and safety and environmental rules, regulations and procedures to support understanding and the practical application of working techniques in the power sector, including:<br>• Health and Safety at Work Act<br>• Management of Health and Safety at Work Regulations<br>• Workplace Health and Safety and Welfare Regulations<br>• Personal Protective Equipment at Work Regulations<br>• Manual Handling Operations Regulations<br>• Provision and Use of Work Equipment Regulations<br>• Reporting of Injuries, Diseases and Dangerous Occurrences Regulations<br>• ESQCR Electricity, Electricity at Work Regulations |

| Knowledge | Amplification and Guidance |
|---|---|
| | • CoSHH Control of Substances Hazardous to Health<br>• Company safety rules<br>• Company policies and procedures |
| **Transmission and distribution** | Knowledge of transmission and distribution plant, equipment, materials and processes to support the practical application of working techniques in the transmission and distribution sector, including:<br>• Transmission/distribution network design principles – substations, underground cables, overhead line, plant and apparatus<br>• System regulation, protection and control<br>• Smart grids – technologies/automation<br>• Energy efficiency – new technologies/smart networks/micro-generation – effect of consumer feeds on networks. |

# Section 4: End-point Assessment Components

## Component 1: Industry Context 'Trade Test'

### Overview

The assessment must be conducted in a controlled assessment location. This location can be on-site or in an environment that reflects the hazards and risks of a real-time working environment. The assessment must be designed to meet the requirements of the PNC Standard – Level 3.

An employer assessor will administer and assess the final trade test assessments, and photographic records of each apprentice's outputs must be taken and retained as evidence, along with records of any relevant supplementary questioning and the answers given during the test. The employer assessor conducting the assessment:

- must remain in visual contact with the apprentice throughout the trade test assessment
- will ask knowledge questions where competence is not confirmed through observation of natural performance and a record made of the event where relevant.

The test will be awarded a pass or fail. The assessment report on the trade test must be included in the apprentice's portfolio.

The trade test will be based on the trade test framework and criteria, designed and issued by Energy & Environment Awards. Trade test mapping summaries for each pathway are provided in **Supporting Documents Appendix E**. Each employer/provider must submit their trade test(s) to Energy & Environment Awards in advance of the testing process for standardisation and approval.

### Step by Step Guide

The table below provides a step by step guide on how the trade test will be carried out:

| | |
|---|---|
| Trade test structure | The duration of each assessment should be comparable with the time given to a fully qualified craftsperson to complete the activity when operating in a normal work environment.<br><br>Each trade test undertaken should be conducted under assessment conditions which allow apprentices to communicate with each other to support the work activity being undertaken. However apprentices should not gain technical support or information from others for tasks which they themselves are being assessed as competent.<br><br>The employer assessor must assess the apprentice in full accordance with current Health, Safety and Environmental legislation and relevant company policies and procedures.<br><br>The employer assessor shall ask knowledge questions where competence is not confirmed through observation of natural performance and record the answers given. |
| Where will the assessment take place? | The assessment must be conducted, under controlled conditions, in in one of the following locations:<br>• on-site, or<br>• in an environment that reflects the hazards and risks of a real-time working environment.<br><br>Where assessment is taking place in a real work environment and where the provider is not the employer whose site is being used for the assessment, the assessors are required to plan assessments appropriately and ensure that they have the required authorisations and documentation in place. |
| What are the assessment requirements? | **All pathways**<br>The assessment activity must take a holistic approach and assess the apprentice's ability to:<br>• use verbal and written communication methods to plan and organise the range of resources required to carry |

| | |
|---|---|
| | out the work, including the materials, tools and equipment<br>• take responsibility for the communication, implementation and monitoring of all safety arrangements required by the activity<br>• maintain a safe working environment throughout the duration of the activity<br><br>**Overhead Lines (Wood Pole)**<br>The assessment will incorporate the use of manual wood pole access/egress equipment to work at height in positions in excess of 8 metres from ground level.<br>The apprentice will need to know how to carry out all of the following:<br>• the identification and implementation of safe access/egress procedures when working on wood pole overhead line plant and apparatus<br>• the siting and setting of a wood pole structure and a wood pole stay anchor<br>• the assembly and installation of overhead line steelwork, fittings and apparatus<br>• the erection and termination of overhead line conductors at height<br>• the connection of conductors using both tension and non-tension joint.<br>There are additional requirements for:<br>• Low Voltage Assessment: Use specialised tools, techniques and equipment to carry out testing and live work on energised low voltage overhead line conductors and interpret the results gained<br>• High Voltage Assessment: Carry out the receipt, transfer and/or clearance of an operational safety document and maintain and comply with the apprentice's conditions and requirements.<br><br>**Overhead Lines (High Voltage Steel Tower)** |

| | |
|---|---|
| | The assessment will incorporate the use of manual steel tower access/egress equipment to work at height in positions in excess of 10 metres from ground level.<br>The apprentice will need to know how to carry out all of the following:<br>• the identification and implementation of safe access/egress procedures when working on steel tower overhead line plant and apparatus<br>• the application and removal of conductor earthing devices at height<br>• the installation/replacement of steel tower fittings<br>• the replacement of both suspension and tension insulators<br>• use equipment to install and test tension and non-tension joints<br>• the receipt, transfer and/or clearance of an operational safety document and maintain and comply with the document's conditions and requirements.<br><br>**Underground Cables (Low Voltage)**<br>The apprentice will need to know how to carry out all of the following:<br>• carry out live jointing techniques of both mains and service cables including XLPE and mains Consac or PILC cables which are complex in nature<br>• carry out low voltage electrical testing procedures and interpret the results gained.<br><br>**Underground Cables (High Voltage)**<br>The apprentice will need to know how to carry out all of the following:<br>• carry out jointing techniques of both high voltage XLPE and PILC cables which are complex in nature<br>• set up a cable spiking gun in accordance with operational requirements and safe working practices |

| | |
|---|---|
| | • carry out the receipt, transfer and/or clearance of an operational safety document and maintain and comply with the document's conditions and requirements<br><br>**Substation Fitting**<br>The apprentice will need to know how to carry out all of the following:<br>• the identification and safe access/egress procedures when working on substation equipment<br>• conduct the inspection of substation apparatus<br>• the maintenance and/or installation of substation apparatus<br>• use equipment to carry out the testing of substation apparatus<br>• the receipt, transfer and/or clearance of an operational safety document and maintain and comply with the document's conditions and requirements.<br><br>The specialism is determined by the option taken by the apprentice. |
| Who sets the task(s)? | Employers set the trade test based on the trade test framework and criteria, designed and issued by Energy & Environment Awards. Each employer/provider must submit their trade test(s), no less than 6 weeks before the intended delivery period, to Energy & Environment Awards in advance of the testing process for standardisation and approval. |
| What resources can the apprentice use? | Equipment and resources needed for the trade test must be<br>• provided by the employer<br>• the tools, equipment and PPE required for the job<br>• in good and safe working condition.<br><br>Work instructions/manuals must be available in hard copy or electronically |

| | |
|---|---|
| How many questions will the apprentice be asked? | The employer assessor will ask questions about KSBs that were not observed to gather assessment evidence. |
| What will the questions focus on? | Underpinning knowledge and/or skills and behaviours where an opportunity to observe them has not occurred. |
| Who will assess the apprentice? | An employer assessor nominated by the apprentice's employer and approved by Energy & Environment Awards. |
| Grading | Fail or Pass |

The industry context 'trade test' covers the KSBs as shown in the tables below. Detail of each of the criteria can be found in Section 2.

| Criteria | Trade Test Requirements: All pathways |
|---|---|
| **CS3 CS5 CS7 CS8** | Use verbal and written communication methods to plan and organise the range of resources required to carry out work, including the materials, tools and equipment |
| **CS4 CS5 CS7** | Take responsibility for the communication, implementation and monitoring of all safety arrangements required by the activity |
| **CS1 CS4 CS7** | Maintain a safe working environment throughout the duration of the assessment |
| **TK6 CS5** | Carry out the receipt, transfer and/or clearance of an operational safety document and maintain and comply with the document's conditions and requirements |

| Criteria | Trade Test Requirements: Overhead Lines<br>Wood Pole |
|---|---|
| **OL1 OL3 OL4 OL5 OL7 OL8** | The assessment must incorporate the use of manual wood pole access / egress equipment to work at height in positions in excess of 8 metres from ground level.<br>Carry out all of the following:<br>a) The identification and implementation of safe access/egress procedures when working on wood pole overhead line plant and apparatus<br>b) The siting and setting of a wood pole structure and a wood pole stay anchor<br>c) The assembly and installation of overhead line steelwork, fittings and apparatus<br>d) The erection and termination of overhead line conductors at height |

| Criteria | Trade Test Requirements: Overhead Lines<br>Wood Pole |
|---|---|
| | e) The connection of conductors using both tension and non-tension joints |
| **CS3** | Use specialised tools, techniques and equipment to carry out testing and live work on energised low voltage overhead line conductors and interpret the results gained (Low Voltage only) |

| Criteria | Trade Test Requirements: Overhead Lines<br>Steel Tower |
|---|---|
| **OL1 OL3 OL4 OL5 OL7 OL8** | The assessment must incorporate the use of manual steel tower access/egress equipment to work at height in positions in excess of 10 metres from ground level<br>Carry out all of the following:<br>a) The identification and implementation of safe access/egress procedures when working on steel tower overhead line plant and apparatus<br>b) The application and removal of conductor earthing devices at height<br>c) The installation/replacement of steel tower fittings<br>d) The replacement of both suspension and tension insulators<br>e) Use equipment to install and test tension and non-tension joints |
| **CS3** | Use specialised tools, techniques and equipment to carry out testing and live work on energised low voltage overhead line conductors and interpret the results gained (Low Voltage only) |

| Criteria | Trade Test Requirements: Underground Cables<br>High Voltage |
|---|---|
| **UC1 UC3 UC5 UC6 UC8 UC9 S3** | Carry out jointing techniques of both high voltage XLPE and PILC cables which are complex in nature<br>a) Set up a cable spiking gun in accordance with operational requirements and safe working practices<br>b) Use specialised tools and techniques on a high voltage network or section of high voltage cable |

| Criteria | Trade Test Requirements: Underground Cables<br>Low Voltage |
|---|---|
| **UC1 UC3 UC5 UC6 UC8 UC9 S3** | a) Carry out live jointing techniques of both mains and service cables including XLPE and mains Consac or PILC cables which are complex in nature<br>b) Carry out low voltage electrical testing procedures and interpret the results gained |

| Criteria | Trade Test Requirements: Substation Fitting |
|---|---|
| **SF1 SF2 SF3 SF4 SF5 SF6 SF7 SF9** | Carry out all the following:<br>a) The identification and safe access/egress procedures when working on substation equipment<br>b) Conduct the inspection of substation apparatus<br>c) The maintenance and/or installation of substation apparatus<br>d) Use equipment to carry out the testing of substation apparatus |

## Trade Test Roles and Responsibilities

| Role | Responsibility |
|---|---|
| **Employer Assessor** | Record and report assessment outcome decisions, for each apprentice, following instructions and using assessment recording documentation approved by Energy & Environment Awards |
| **Employer/Training provider** | Provide the venue for the trade test with questions which must be suitably equipped to allow the apprentice to attempt all aspects of the trade test<br><br>Provide all necessary tools and equipment for the apprentice<br><br>Ensure the apprentice has access to the resources used daily<br><br>Provide documentation in relation to the guidance of Energy & Environment Awards and the requirements of the apprenticeship trade test<br><br>Nominate the Employer Assessor |
| **Energy & Environment Awards** | Provide documentation and guidance in relation to the requirements of the apprenticeship trade tests<br><br>Approve employers' trade tests<br><br>Approve, provide training for and monitor technical experts<br><br>Provide remedial support, for Employer |

| Role | Responsibility |
| --- | --- |
| | Assessors, to ensure consistency and reliability of judgements |

## Component 2: Technical Interview

Overview

The technical interview must take place in the final month of the apprenticeship and must be completed after successful completion of the trade test.

The technical interview is designed to meet the requirements of the PNC Standard – Level 3 and will be conducted as a minimum by one employer assessor who has not been involved in the apprentice's practical trade test. A technical interview mapping summary is provided in Supporting Documents Appendix F.

### Step by Step Guide

The table below provides a step by step guide on how the interview based on the portfolio of assessment will be carried out:

| | |
|---|---|
| **Assessors** | 1 independent assessor |
| **Interview structure** | The technical interview will be based on the technical interview framework and criteria designed and issued by Energy & Environment Awards.<br><br>**Number of questions:** There are no prescribed minimum/maximum number of questions. Additional follow up questions are allowed, to seek clarification<br><br>**Location:** a quiet room, free from distractions and influence<br><br>**Time:** There is no prescribed minimum/maximum time allowance for the interview<br><br>The interview will be:<br><br>• face to face or remote, as agreed<br>• recorded in writing using an interview record template provided by Energy & Environment Awards<br>• video recorded using relevant technology such as Microsoft Teams or an audio recording device |

| | |
|---|---|
| | • conducted under controlled conditions |
| **What topics will be covered?** | Questions will cover the following areas:<br>• Comply with the current Health, Safety and Environmental legislation and regulations applicable to work in the power sector<br>• Plan, organise and control a range of resources required to carry out work relative to their job role on an operational network<br>• Identify the hazards and control measures necessary to carry out work on an operational network<br>• Apply company rules, policies and procedures as defined by the employer to carry out work relative to their job role on an operational network<br>• Carry out electrical testing procedures of plant, apparatus and equipment on an operational network and interpret the results of the tests conducted<br>• Use and apply relevant electrical theories and electrical/mechanical principles in the practical application of work processes and procedures related to their job role<br>• Use and apply mathematical calculations to support power engineering design, construction and maintenance activities related to their job role<br>• Undertake the responsibilities and duties for the receipt, transfer and/or clearance of an operational safety document and maintain and comply with the documents' conditions and requirements. |
| **How many questions will the apprentice be asked?** | There are no prescribed minimum/maximum number of questions. |
| **Who will assess the apprentice?** | An employer assessor who has not been involved in the apprentice's trade test.<br>The employer assessor is nominated by the apprentice's employer and approved by Energy & Environment Awards |
| **Grading** | Fail or Pass |

## Knowledge, Skills and Behaviours (KSBs) coverage

The interview covers the KSBs as shown in the tables below. Detail of each of the criteria can be found in Section 2.

| Criteria | Technical Interview Requirements: All pathways |
|---|---|
| **CTK1 CTK5 CTK6 CS1 CS2 CS4 CS6 CS8 CS9 OL1 OL3 OL5 OL9 UC1 UC2 UC3 UC4 UC5 UC6 UC8 UC9 SF1 SF2 SF3 SF4 SF5 SF6 SF7 SF9** | **AR1**: Comply with the current Health, Safety and Environmental legislation and regulations applicable to work in the power sector |
| **CS8 CS9 OL2 OL5 OL9 UC1 UC3 UC4 UC5 UC6 UC8 UC9 SF1 SF2 SF3 SF4 SF5 SF6 SF7 SF9** | **AR2**: Plan, organise and control a range of resources required to carry out work relative to their job role on an operational network |
| **CS2 CS6 CS8 CS9 OL1 OL3 OL5 OL9 UC1 UC2 UC3 UC4 UC5 UC6 UC8 UC9 SF1 SF2 SF3 SF4 SF5 SF6 SF7 SF9** | **AR3**: Identify the hazards and control measures necessary to carry out work on an operational network |
| **CTK5 CTK6 CS1 CS2 CS4 CS6 CS8 CS9 OL1 OL3 OL5 OL9 UC1 UC2 UC3 UC4 UC5 UC6 UC8 UC9 SF1 SF2 SF3 SF4 SF5 SF6 SF7 SF9** | **AR4**: Apply Company rules, policies and procedures as defined by the employer to carry out work relative to their job role on an operational network |

| Criteria | Technical Interview Requirements: All pathways |
|---|---|
| **CTK1**<br>**OL3**<br>**UC2 UC5 UC6 UC8**<br>**SF2 SF5 SF9** | **AR5**: Carry out electrical testing procedures of plant, apparatus and equipment on an operational network and interpret the results of the tests conducted |
| **CTK2 CTK3**<br>**OL3 OL4**<br>**UC3 UC4 UC5 UC6 UC8**<br>**SF2 SF4 SF5 SF6 SF9** | **AR6**: Use and apply relevant electrical theories and electrical/mechanical principles in the practical application of work processes and procedures related to their job role |
| **CTK4**<br>**OL4**<br>**UC3 UC5 UC6**<br>**SF2 SF5** | **AR7**: Use and apply mathematical calculations to support power engineering design, construction and maintenance activities related to their job role |
| **CS5 CS6 CS9**<br>**OL9**<br>**UC3**<br>**SF9** | **AR8**: Undertake the responsibilities and duties for the receipt, transfer and/or clearance of an operational safety document and maintain and comply with the documents conditions and requirements |

## Interview Roles and Responsibilities

| Role | Responsibility |
|---|---|
| **Employer Assessor** | Record and report assessment outcome decisions, for each apprentice, following instructions and using assessment recording documentation approved by Energy & Environment Awards |
| **Employer/Training provider** | Provide documentation in relation to the guidance of Energy & Environment Awards and the requirements of the apprenticeship technical interview<br><br>Nominate the Employer Assessor<br><br>Provide a suitable room and facilities for the interview |
| **Energy & Environment Awards** | Provide documentation and guidance in relation to the requirements of the apprenticeship technical interview<br><br>Approve employers' technical interview documentation<br><br>Approve, provide training for and monitor technical experts<br><br>Provide remedial support, for Employer<br><br>Assessors, to ensure consistency and reliability of judgements |

## Component 3: Behaviour and Progress Final Assessment

### Overview

The Apprentice Progress Review Sheet has been devised to support apprentices' reviews as they progress through their apprenticeship. It allows apprentices to understand the behaviours required of them, their actual performance and any actions required. The form should be used from the beginning of the apprenticeship. A template is provided in **Supporting Documents Appendix C 'Behaviour and Progress Report'**. It should be completed at the end of each training module and/or every 12 weeks. It is anticipated that there will be a minimum of 20 progress reports completed for each apprentice.

Energy & Environment Awards will require documentary evidence from at least two Behaviour and Progress assessments, conducted in the final six month period of the apprenticeship during EPA, together with a recommendation on grade.
Completing the Form.

Reviews undertaken on programme should be completed by as many appropriate staff as possible, in line with the timing described above. Those who will typically complete it may include:

- Trainers
- Assessors
- Line managers
- HR
- Mentor
- Craftsperson assigned as the 'industry expert'

Each person should indicate the appropriate levels of behaviour displayed by the apprentice and provide feedback to them. The apprentice should be given the opportunity to comment on the feedback on their performance. The completed form should be forwarded for central collation in line with company processes.

The two Behaviour and Progress Final Reviews, conducted within EPA, and that contribute to the apprentices' final grade must be undertaken by an employer appointed and Energy & Environment Awards approved assessor.

## Guidance on levels of behaviour

The levels of behaviour range from 1 to 5. Each level is further divided by plus or minus, i.e. if the apprentice demonstrates behaviours that veer towards the next level, consider using the 'plus' column or the 'minus' column of the next level of behaviour.

| Behaviour 2 | + | 5 | - | + | 4 | - | + | 3 | - | + | 2 | - | + | 1 | - |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Working with Others** | Develops positive relationships with individuals to support specific issues | | | Effectively contributes to team success, and suggests valid ideas | | | Respects the needs and contribution of others both inside and outside of the team | | | Holds back from contributing to team success | | | Refers to working with others in negative terms and prefers to 'go it alone' | | |
| **Assessment Justification** | | | | | | | | | | | | | | | |

It is anticipated that levels of behaviour 1 to 3 will primarily be used, where appropriate, when reviewing behaviours at the end of training modules as it is unlikely that the apprentice will have the opportunity to demonstrate levels 4 or 5. The discussion with the apprentice should explain this so that they are not demotivated. Where levels 4 or 5 are appropriate, apprentices are expected to have provided suitable evidence to substantiate the level awarded

Descriptors explained

The areas are described below in more detail:

- Risk assessment – routinely undertakes risk assessments on-site, identifying a range of hazards in line with company processes using appropriate paperwork. Can explain the purpose of risk assessments to others
- Working with others – communicates their views in a constructive way whilst listening to and appreciating others' views. Offers support when required and can demonstrate a plan for their activities
- Interpersonal skills – is able to communicate with internal and external customers in a professional and courteous manner, responding fully to their requests and providing a positive experience
- Practical knowledge – can apply technical knowledge learnt to the work environment and explain the impact of their actions
- Practical skills – appropriate and confident use of tools and equipment. Can identify key plant and its use

- Quality of work – undertakes work in a timely manner and it is right first time

Behaviour and Progress Final Assessment Roles and Responsibilities

| Role | Responsibility |
|---|---|
| **Employer Assessor** | Is typically provided by the employer or training provider<br>Attend induction training as directed by Energy & Environment Awards<br><br>Review the evidence gained from a minimum of two behaviour and progress assessments conducted in the final six month period of the apprenticeship |
| **Employer/Training provider** | Complete Behaviour and Progress reviews with the apprentice throughout the apprenticeship<br><br>Provide documentary evidence from the final two Behaviour and Progress assessments |
| **Energy & Environment Awards** | Approve, provide training for and monitor technical experts<br>Provide remedial support, for Technical Experts, to ensure consistency and reliability of judgements |

# Section 5: Grading and Grading Criteria

## Component 1: Industry context ‘trade test’

Fail - does not meet pass criteria.
Pass – The apprentice must meet all the assessment requirements for the statements covering ‘All pathways’ plus the statements for the pathway they are following. The requirements are detailed in Section 4: End-point Assessment Components.

## Component 2: Technical Interview

Fail - does not meet pass criteria.
Pass – The apprentice must meet all the assessment requirements for the statements covering ‘All pathways’ plus the statements for the pathway they are following. The requirements are detailed in Section 4: End-point Assessment Components.

## Component 3: Behaviour and Progress Review

The following criteria apply to the Behaviour and Progress Review:

| Fail criteria | Pass criteria | Distinction criteria |
|---|---|---|
| • Subject to a company disciplinary procedure<br>• Behaviour and Progress Review reports record poor performance across the six categories in the final six-month end-point assessment period<br>• Evidence/examples of inadequate and insufficient attention to risk assessment measures and actions<br>• Evidence/examples of poor team working<br>• Evidence/examples of poor working and interpersonal skills<br>• Evidence/examples of poor practical application of knowledge to work tasks<br>• Evidence/examples of inconsistent application of practical skills across | • Behaviour and Progress Review reports record satisfactory performance across the six categories in the final six-month end-point assessment period<br>• Evidence/examples of attention to risk assessment measures and actions<br>• Evidence/examples of good team working<br>• Evidence/examples of good working and interpersonal skills<br>• Evidence/examples of good practical application of knowledge to work tasks<br>• Evidence/examples of consistent application of practical skills across the six-month end-point assessment period | • Behaviour and Progress Review reports record a minimum of 40% of performance at level 5 and the remainder no less than level 4 in the final six-month EPA period<br>• Evidence/examples of leadership and ownership of risk assessment measures and actions<br>• Evidence/examples of leadership and ownership of team working activities<br>• Evidence/examples of high level of emotional intelligence that demonstrate a respect for the opinion and needs of others<br>• Evidence/examples of high levels of knowledge application that consider the wider implications of the activity beyond the individual task |

| Fail criteria | Pass criteria | Distinction criteria |
|---|---|---|
| the six-month end-point assessment period<br>• Evidence/examples of poor quality of work and attention to detail and is either inconsistent or below standard during the six-month end-point assessment period | • Evidence/examples of good quality of work and attention to detail and is either consistent and meets company standards during the six-month end-point assessment period | • Evidence/examples of consistent application of practical skills that take account of company policies/procedures, environmental practices, commercial interests<br>• Evidence/examples of high quality of work and attention to detail and demonstrates leadership in motivating others to attain standards which enhance and protect the company brand |

## Overall grading

All assessment methods are weighted equally in their contribution to the overall EPA grade.
following way to determine the grade of the overall EPA as a whole.

| Trade Test | Technical Interview | Behaviour and Progress Review | Overall grading |
|---|---|---|---|
| Fail | Any grade | Any grade | Fail |
| Any grade | Fail | Any grade | Fail |
| Any grade | Any grade | Fail | Fail |
| Pass | Pass | Pass | Pass |
| Pass | Pass | Distinction | Distinction |

## Final Decision Panel

A Final Decision Panel (FDP) will review the Behaviour and Progress assessment evidence together with the results and evidence of the trade tests and technical interviews to make the final decision of whether to award a pass or distinction grade. This decision will be informed by the published criteria and assessment framework. Accurate and appropriate records covering the trade test, technical interview and two Behaviour and Progress reports for each apprentice MUST be submitted to Energy & Environment Awards at least 6 weeks before the FDP takes place.

The FDP will consist of three panel members:

- One panel member will represent the apprentice's employer but they will not have been solely involved in their training or end-point assessments
- Two panel members will be representatives from other employers or a professional body. One of the independent panel members will act as the Chair of the Panel
- Each panel meeting is supported by a representative of Energy & Environment Awards whose role is to observe and intervene where necessary to ensure
- the panel operates in accordance with its Terms of Reference

- comparable and consistent decisions across panels and over time.

One of the independent panel members will act as chair of the panel. The decision panel will check all available evidence from the assessments and members will discuss it.  The independent chair will make the final decision of whether to award a fail, pass or distinction. Therefore, someone independent of the apprentice and their employer will always determine the grade awarded. Energy & Environment Awards will co-ordinate the final decision panels ensuring comparable decisions consistently and comparably across panels and over-time.

## Section 6: Resits and retakes

Apprentices who fail one or more EPA method(s) can take a re-sit or a re-take at their employer's discretion. The apprentice's employer needs to agree that a re-sit or re-take is appropriate. A re-sit does not need further learning, but a re-take does. Apprentices should have a supportive action plan to prepare for a re-sit or a re-take. The employer and Energy & Environment Awards agree the timescale for a re-sit or re-take. A re-sit is typically taken within 2 months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within 4 months of the EPA outcome notification.

Failed EPA methods must be re-sat or re-taken within a 6-month period from the EPA outcome notification, otherwise the entire EPA will need to be re-sat or re-taken in full.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to a higher grade.

Energy & Environment Awards resit and re-take policy can be found at https://energyenvironmentawards.co.uk/policies-and-fees/

# Section 7: Practice Guidance

## Preparing for the Trade Test

Where possible, the employer/training provider should provide the apprentice with the opportunity to carry out a practice practical assessment as close to the real assessment described in Section 2 of this Specification (Component 1).

The employer/training provider should prepare a practical task similar to (but not identical to) the tasks being used for the live assessment. A suitable person should be chosen to play the part of the employer assessor.

A template is provided in **Supporting Documents Appendix D 'Trade Test Planning'**, to help ensure that the activities assessed during the practical assessment with questioning will give complete coverage of the standard.

## Preparing for the Technical Interview

A good time to schedule a practice interview is towards the end of the formal training period. It must be done with enough time to provide feedback to the apprentice that they can learn from before the live end-point assessment.

A period of two weeks or more is recommended, depending on the circumstances. The key is that the apprentice has time to act on the feedback they get at the end of the practice. A period of at least two hours should be set aside for each practice interview, and a set of open-ended questions prepared to cover each of the areas of the standard covered by the technical interview. A tutor or supervisor should play the part of the assessor carrying out the technical interview, asking the questions in a 'live test environment'. They should record their assessment of the apprentice performance, using the technical interview requirements in Section 4 as a guide, and provide the apprentice with feedback, focussing on areas of improvement.

The technical interview questioning should synoptically examine the knowledge, skills and behaviours by the apprentice through their on-programme experience. The questioning should be contextualised to the apprentice's specific job role. The tutor or supervisor must:

- prepare some interview questions around each of the eight requirements (AR1-8), described in section 4
- use various questioning techniques to confirm the depth of knowledge and or range of skills
- record the technical interview or provide a clear narrative if the interview was not recorded. The narrative must describe the apprentices' responses to each of the questions asked. The narrative must capture the depth and breadth of the apprentice's response
- ensure the apprentice has provided evidence in their responses to cover all the relevant elements of the standard
- provide feedback to the apprentice focussing on any areas of the standard missed.

## Section 8: Authenticity and security of apprentice work

The apprentices must be advised by their training provider and employer that copying of any work (whether it is from another apprentice or from internal, external documents or source) and presenting it as their own will be deemed as malpractice and will lead to their work being disqualified. Apprentices must not share their work or allow any person to copy their work as this is not allowed and would also be deemed as malpractice.

In signing off the portfolio, training providers and employers must be satisfied that the evidence in the portfolio is:

- **adequate**: evidence should cover all relevant KSBs within the assessment plan. Adequate does not mean a large quantity of evidence. The evidence should focus on quality rather than quantity
- **authentic**: apprentices must be able to confirm and talk about the evidence that they submit with the independent assessor. It is vitally important apprentices only submit evidence relating to them
- **appropriate**: all evidence must be relevant to the KSB's assessed during the interview
- **recent and up to date:** all evidence linked to KSBs must be recent and current which demonstrate the apprentice's competence. The Independent Assessor will assess current competences, and this means the apprentice must map the evidence to demonstrate the relevant work to demonstrate the KSB. The evidence apprentices must be gathered during their on-programme

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