



ENERGY &  
UTILITY SKILLS

Skills for a greener world

EUIAS Level 3 End-point Assessment for Power Industry  
Substation Fitter  
(Distribution maintenance; Transmission maintenance;  
Construction)

## Supporting Documents

QAN 610/4850/1  
ST1331 V1.2

# Supporting Documents for

## EUIAS Level 3 End-point Assessment for Power Industry Substation Fitter

(Distribution maintenance; Transmission maintenance;  
Construction)

**QAN 610/4850/1**

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## Updates to the supporting documents

Since the first publication of the EUIAS Power Industry Distribution Substation Fitter (PISF) Specification – the following updates have been made.

Version	Date first published	Section updated	Page(s)
V1.2	November 2024	Standard updated (V1.2) to include statement ' <i>The apprentice may choose to end the assessment method early.</i> ' For 3 assessment methods	5, 11, 14, 17, 33, 37, 53, 73, 75, 82, 84, 84, 90, 92, 99-101, 136, 137
v1.2	November 2024	Update to assessment plan - removal of the words 'positioning of a transformer and'	19
v1.1	October 2024	Minor updates to align the 3 Power Industry Supporting Documents	
v1.0	October 2024	First published	All

## Appendix A: Glossary

**Amplification** – provides more detail on how individual knowledge, skills or behaviours statements should be interpreted. Where the KSB statements, themselves are deemed self-explanatory, no amplification is provided. Assessment may include questions on anything identified in the amplification

**Behaviours (as part of KSBs)** – specific mindsets, attitudes or approaches identified as part of the apprenticeship standard that must be evidenced during end-point assessment

**Elements** – are the knowledge, skills and behaviours and what is needed to competently undertake the duties required for an occupational standard

**Gateway** - the stage of the apprenticeship where the apprentice, employer and training provider determine whether the apprentice is ready to undertake end-point assessment

**Guidance** – is only provided where it is required to support interpretation of the KSB statements

**Knowledge (as part of KSBs)** – specific information, technical detail, and ‘know-how’ identified as part of the apprenticeship standard that must be evidenced during end-point assessment

**Pathways** – a specialist route within an apprenticeship standard that builds on the occupational competence for a new entrant to the occupation

**Skills (as part of KSBs)** – the practical application of knowledge identified as part of the apprenticeship standard that must be evidenced during end-point assessment

**Standard** – An occupational standard is a description of an occupation. It contains occupational profile, and describes KSBs needed for someone to be competent in the occupation’s duties. Occupational standards are developed by employers for occupations that meet the Institute for Apprenticeships and Technical Education current occupation criteria

**Topic** - is a collection of elements grouped into a theme e.g. Health and Safety

## Appendix B: Gateway Eligibility Form

(Standard Version: ST1331 version 1.2; Assessment Plan Version:1.2)

<b>Apprentice's name:</b>	<b>Apprentice's job title:</b>
<b>Name of Employer:</b>	<b>Name of Training provider:</b>
<b>Employer representatives present:</b>	<b>Training provider representatives present:</b>
<b>Apprenticeship start date:</b>	<b>Apprenticeship on-programme end date:</b>
<b>Gateway meeting date:</b>	
<b>Has the apprentice taken any part of the end-point assessment for this apprenticeship standard with any other End Point Assessment Organisation?</b>	Y / N
<b>If "Yes" please give details:</b>	

## Apprentice's details

Eligibility requirements:

The apprentice must confirm their achievement of the following:

Eligibility requirement	Achieved by the apprentice? Y/N	Evidence (Scans of certificates MUST be included)
Achieved an English qualification in line with the apprenticeship funding rules		
Achieved a mathematics qualification in line with the apprenticeship funding rules		
Passed Emergency first aid 1 day course		
Compiled and submitted an EPA portfolio that meets the specification requirements, for the interview based on an EPA portfolio		

## Gateway Eligibility Declaration

1. The apprentice, the employer and the training provider must sign this form to confirm that they understand and agree to the following:
2. The apprentice has completed the required on-programme elements of the apprenticeship and is ready for end-point assessment with EUIAS.
3. EUIAS has been informed about any reasonable adjustment and/or special considerations requests.
4. The apprentice will only submit their own work as part of end-point assessment.
5. All parties agree that end-point assessment evidence may be recorded and stored by EUIAS for quality assurance purposes.
6. The apprentice has been on-programme for a minimum duration of 365 days.
7. The apprentice has achieved English and mathematics qualifications in line with the apprenticeship funding rules.
8. The apprentice has passed an Emergency first aid 1 day course
9. The apprentice has compiled and submitted an EPA portfolio for the interview based on an EPA portfolio.
10. The apprentice, if successful, gives permission for EUIAS to request the apprenticeship certificate from the ESFA who issue the certificate on behalf of the Secretary of State.
11. The apprentice has been directed to the EUIAS Appeals Policy and Complaints Policy.
12. The employer/training provider has given the EUIAS at least three months' notice of requesting this EPA for this apprentice.
13. If the Gateway Eligibility Report is not completed in full, meeting all requirements, and submitted to EUIAS, the end-point assessment cannot take place.



Signed on behalf of the employer (print name):	Signature:	Date:
Signed on behalf of the training provider (print name):	Signature:	Date:
Apprentice's name (print):	Signature:	Date:
EUIAS use only:		
EUIAS Sign off:		
Comments/actions:		



## Appendix C: Trade Test Practical Assessment Requirements and Mapping Form

# Trade Test Practical Assessment with Questions Mapping Summary

## Trade Test Practical Assessment Documentation

### Distribution maintenance

The following documentation must be provided to EUIAS upon request. This forms part of EUIAS' quality assurance process for the PISF Standard. Please complete the table below by adding a reference(s) to your own paperwork in the document references column.

Documentation Requirements	Please provide the document filename(s)
Employer Assessor training and standardisation materials	
Employer Assessor documentation	
Guidance for Employer Assessors	
Guidance on invigilation of apprentices	
Grading guidance	
Question bank	
Guidance for apprentice and their manager	
Tasks for apprentices	

## Trade Test Practical Assessment Requirements

### Distribution maintenance

Please complete the table below by adding a reference(s) to your own paperwork in the document references column. In the reference column include the page(s) where evidence of the practical assessment requirements for the trade test (TT) can be located within your trade test paperwork.

Trade Test Practical Assessment Requirements	Please provide a document reference of where your documentation references the requirement
Space for the start and end date of TT to be documented <i>The trade test practical assessment with questions may take place in parts but must be completed over no more than 21 working days.</i>	
TT total time documented	
Space to <ul style="list-style-type: none"> <li>• document an apprentice's request to end the assessment early</li> <li>• indicate whether the employer assessor suggested the assessment continues</li> </ul>	
Guidance includes identified simulated environment(s)/locations	
Task to be conducted during practical assessment:	
<b>Core</b>	
a) prepare for power substation fitter activities	
b) organise and supervise a working party including receiving and clearing a safety document, and briefing a working party	



Trade Test Practical Assessment Requirements	Please provide a document reference of where your documentation references the requirement
c) maintain work site health, safety, and environmental compliance including completing a risk assessment	
d) identify apparatus to be worked on	
e) select, prepare, use and store tools and equipment	
f) complete work records	
<b>Distribution Maintenance</b>	
g) use maintenance specifications	
h) electrical testing	
i) circuit breaker maintenance	
j) battery maintenance	
k) inspection and monitoring of substation equipment	
l) switching operations	
KSBs are mapped to the assessment	
Guidance to employer assessor includes statement 'must ask at least 9 questions	
KSBs observed to be documented	
Space for apprentice's responses to be documented	
KSBs demonstrated in answers to questions are indicated	
Preliminary grade achieved recorded	
Guidance for resits to include: <ul style="list-style-type: none"><li>• different questions and tasks</li><li>• resit whole TT Practical Assessment in full</li></ul>	

# Trade Test Practical Assessment with Questions Mapping Summary

## Trade Test Practical Assessment Documentation Transmission maintenance

The following documentation must be provided to EUIAS upon request. This forms part of EUIAS' quality assurance process for the PISF Standard. Please complete the table below by adding a reference(s) to your own paperwork in the document references column.

Documentation Requirements	Please provide the document filename(s)
Employer Assessor training and standardisation materials	
Employer Assessor documentation	
Guidance for Employer Assessors	
Guidance on invigilation of apprentices	
Grading guidance	
Question bank	
Guidance for apprentice and their manager	
Tasks for apprentices	

## Trade Test Practical Assessment Requirements

### Transmission maintenance

Please complete the table below by adding a reference(s) to your own paperwork in the document references column. In the reference column include the page(s) where evidence of the practical assessment requirements for the trade test (TT) can be located within your trade test paperwork.

Trade Test Practical Assessment Requirements	Please provide a document reference of where your documentation references the requirement
Space for the start and end date of TT to be documented <i>The trade test practical assessment with questions may take place in parts but must be completed over no more than 21 working days.</i>	
TT total time documented	
Space to <ul style="list-style-type: none"> <li>• document an apprentice's request to end the assessment early</li> <li>• indicate whether the employer assessor suggested the assessment continues</li> </ul>	
Guidance includes identified simulated environment(s)/locations	
Task to be conducted during practical assessment:	
<b>Core</b>	
a) prepare for power substation fitter activities	
b) organise and supervise a working party including receiving and clearing a safety document, and briefing a working party	



Trade Test Practical Assessment Requirements	Please provide a document reference of where your documentation references the requirement
c) maintain work site health, safety, and environmental compliance including completing a risk assessment	
d) identify apparatus to be worked on	
e) select, prepare, use and store tools and equipment	
f) complete work records	
<b>Transmission Maintenance</b>	
g) use maintenance specifications	
h) use elevated work platforms	
i) electrical testing	
j) circuit breaker maintenance	
KSBs are mapped to the assessment	
Guidance to employer assessor includes statement 'must ask at least 9 questions	
KSBs observed to be documented	
Space for apprentice's responses to be documented	
KSBs demonstrated in answers to questions are indicated	
Preliminary grade achieved recorded	
Guidance for resits to include: <ul style="list-style-type: none"><li>• different questions and tasks</li><li>• resit whole TT Practical Assessment in full</li></ul>	

# Trade Test Practical Assessment with Questions Mapping Summary

## Trade Test Practical Assessment Documentation Construction

The following documentation must be provided to EUIAS upon request. This forms part of EUIAS' quality assurance process for the PISF Standard. Please complete the table below by adding a reference(s) to your own paperwork in the document references column.

Documentation Requirements	Please provide the document filename(s)
Employer Assessor training and standardisation materials	
Employer Assessor documentation	
Guidance for Employer Assessors	
Guidance on invigilation of apprentices	
Grading guidance	
Question bank	
Guidance for apprentice and their manager	
Tasks for apprentices	



## Trade Test Practical Assessment Requirements

### Construction

Please complete the table below by adding a reference(s) to your own paperwork in the document references column. In the reference column include the page(s) where evidence of the practical assessment requirements for the trade test (TT) can be located within your trade test paperwork.

Trade Test Practical Assessment Requirements	Please provide a document reference of where your documentation references the requirement
Space for the start and end date of TT to be documented <i>The trade test practical assessment with questions may take place in parts but must be completed over no more than 21 working days.</i>	
TT total time documented	
Space to <ul style="list-style-type: none"> <li>• document an apprentice's request to end the assessment early</li> <li>• indicate whether the employer assessor suggested the assessment continues</li> </ul>	
Guidance includes identified simulated environment(s)/locations	
Task to be conducted during practical assessment:	
<b>Core</b>	
a) prepare for power substation fitter activities	
b) organise and supervise a working party including receiving and clearing a safety document, and briefing a working party	



Trade Test Practical Assessment Requirements	Please provide a document reference of where your documentation references the requirement
c) maintain work site health, safety, and environmental compliance including completing a risk assessment	
d) identify apparatus to be worked on	
e) select, prepare, use and store tools and equipment	
f) complete work records	
<b>Construction</b>	
g) use engineering representations, drawings, and graphical information	
h) follow construction safety requirements	
i) install new substation equipment including locating and fixing high voltage switchgear	
j) install earthing associated with substations	
k) install and terminate multi-core cables and containment systems	
l) conduct testing on installed equipment	
KSBs are mapped to the assessment	
Guidance to employer assessor includes statement 'must ask at least 9 questions	
KSBs observed to be documented	
Space for apprentice's responses to be documented	
KSBs demonstrated in answers to questions are indicated	



Trade Test Practical Assessment Requirements	Please provide a document reference of where your documentation references the requirement
Preliminary grade achieved recorded	
Guidance for resits to include: <ul style="list-style-type: none"><li>• different questions and tasks</li><li>• resit whole TT Practical Assessment in full</li></ul>	

## Trade Test Practical Assessment Mapping

Please complete the table below by adding a reference(s) to your own paperwork in the document references column to indicate the page(s) where evidence of the KSBs are found in your trade test practical assessment tasks.

### Core

Trade Test Theme: Prepare for substation fitter activities	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K22:</b> Planning, prioritising, organisation, and time management techniques for self and working party	
<b>S1:</b> Review drawings, instructions, or information to understand the task for example, work instructions, design specifications, utility plans, on-line search documents	
<b>S2:</b> Prioritise and plan tasks with consideration for safety, environmental impact, quality, and cost	
<b>S3:</b> Identify and organise resources to complete tasks for example, consumables	
<b>S18:</b> Select, check, and prepare resources.	



Trade Test Theme: Organise and supervise a working party	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S5:</b> Receive and clear a safety document. Brief a working party	
<b>B3:</b> Take ownership for work and responsibility for its impact on others. For example, self-motivated, disciplined in the approach to work tasks, identify and deal appropriately with distractions to enable tasks to be achieved, work carried out in line with standards	

Trade Test Theme: Maintain work site health, safety, and environment compliance	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K7:</b> The hazards associated with work on or near electrical power networks	
<b>K10:</b> Risk assessments and method statements. Emergency procedures. Personal protective equipment (PPE). Manual handling. Fire safety	
<b>K19:</b> Recycling and waste transfer requirements	
<b>K37:</b> Hazards and controls for access and egress of operational substation sites: security, pre-entry checks, logging in requirements, automatic or remotely operated equipment, and fire suppression systems	
<b>S6:</b> Follow substation access and egress procedures	
<b>S7:</b> Identify hazards and risks and apply control measures	



Trade Test Theme: Maintain work site health, safety, and environment compliance	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S8:</b> Apply health and safety procedures in compliance with regulations, standards, and guidance. For example, demarcate the work area, working at height, confined spaces, COSHH	
<b>S10:</b> Apply measures to leave power work environments in a safe condition	
<b>S13:</b> Segregate waste for reuse, recycling, and waste transfer	
<b>B1:</b> Prioritise health and safety. For example, risk aware, minimise risks, and proactively work towards preventing accidents	

Trade Test Theme: Identify apparatus	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S4:</b> Identify apparatus to be worked on	

Trade Test Theme: Tools and equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K23:</b> Hand tools and power tools application and operation requirements. Insulated tools - selection and care considerations	
<b>S17:</b> Select, check, prepare, use, and store hand tools and power tools	



Trade Test Theme: Complete work records	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K25:</b> Documentation requirements; importance of accurate records	
<b>S23:</b> Record information	



## Distribution maintenance

Trade Test Theme: Use maintenance specifications	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S27:</b> Read, interpret, and follow maintenance specifications	

Trade Test Theme: Electrical testing	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K43:</b> Electrical testing requirements and methods: continuity and polarity of circuits, insulation resistance, Voltage, Earth Fault Loop Impedance (EFLI), phase rotation, and joint or contact resistance	
<b>S28:</b> Conduct diagnostic testing to identify asset condition; identify action	
<b>S29:</b> Conduct continuity testing using a continuity test instrument or multimeter <b>S30:</b> Conduct joint or contact resistance testing using a contact resistance tester (ductor)	
<b>S31:</b> Conduct insulation testing using an insulation test instrument	
<b>S46:</b> Conduct supply checks of a low voltage single and three phase supply to identify: correct polarity, voltage, earth fault loop impedance and phase rotation	
<b>S47:</b> Use electrical test instruments to diagnose a fault condition on low voltage distribution or control equipment for example open circuit, blown fuse, short circuit or out phase condition	





Trade Test Theme: Circuit breaker maintenance	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K44:</b> Insulating oil sampling methods: sample taps and sample tubes and their requirements	
<b>K47:</b> Post fault and routine maintenance of oil filled circuit breakers requirements	
<b>S32:</b> Conduct circuit breaker timing tests	
<b>S33:</b> Set up oil pumping equipment	
<b>S34:</b> Remove and replace insulating oil from substation plant avoiding contamination	
<b>S35:</b> Clean oil filled equipment following removal of insulating oil	
<b>S36:</b> Check circuit breaker contact condition; remove and replace or dress	
<b>S37:</b> Take oil samples from equipment	
<b>S38:</b> Clean and lubricate operating mechanisms using approved lubricants	
<b>S39:</b> Adjust, remove, and replace components for example, gaskets	

Trade Test Theme: Battery maintenance	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K49:</b> Substation battery maintenance and testing requirements: wet cell and dry (sealed) battery types	
<b>S44:</b> Check battery connections for any damage, clean cells, check monitoring alarms, check function of charging equipment	



Trade Test Theme: Battery maintenance	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S45: Test substation batteries using voltage and analytical testing instruments</b>	

Trade Test Theme: Inspection and monitoring of substation equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K45: Requirements for inspection, monitoring and condition assessment of equipment in distribution secondary or primary substation types</b>	
<b>S40: Conduct functional tests of equipment - post maintenance or routine</b>	
<b>S41: Inspect substation site, buildings and equipment including steelwork and neutral earthing conductors and connections and identify defects</b>	

Trade Test Theme: Switching operations	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K56: Low voltage and high voltage operational switching and testing requirements</b>	
<b>S48: Interpret network schematic diagrams and geographic records to identify running arrangements prior to operation</b>	
<b>S49: Prepare low voltage or high voltage switching operation schedules</b>	



Trade Test Theme: Switching operations	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S50:</b> Operate network switching equipment such as switches, circuit breakers, links or fuses on low voltage or high voltage distribution networks	



## Transmission maintenance

Trade Test Theme: Use maintenance specifications	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S51:</b> Read, interpret, and follow maintenance specifications	

Trade Test Theme: Use elevated work platforms	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S53:</b> Use mobile elevated work platforms.	

Trade Test Theme: Electrical testing	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K57:</b> Electrical testing requirements and methods: continuity, voltage, and joint or contact resistance	
<b>K66:</b> Restoring power procedures	
<b>S52:</b> Interpret network schematic diagrams prior to carrying out testing activities	
<b>S54:</b> Use diagnostic equipment to identify asset condition; identify action	
<b>S55:</b> Conduct testing using a continuity test instrument or multimeter	
<b>S56:</b> Conduct resistance testing using a contact resistance tester (ductor)	
<b>S57:</b> Conduct circuit breaker timing tests	
<b>S69:</b> Restore power.	



Trade Test Theme: Circuit breaker maintenance	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K59:</b> Use and operation of mechanical fixings	
<b>K62:</b> Maintenance processes for circuit breakers	
<b>S62:</b> Take insulation medium samples from equipment for example, oil, SF6.	
<b>S63:</b> Clean and lubricate operating mechanisms using approved lubricants	
<b>S64:</b> Adjust or replace components	
<b>S65:</b> Conduct functional tests of equipment, post maintenance or routine, to confirm operating to expected parameters	
<b>S66:</b> Conduct a visual inspection of transmission steelwork earthing connections; identify issues	



## Construction

Trade Test Theme: Use engineering representations, drawings, and graphical information	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K67:</b> Engineering representations, drawings, and graphical information: application and importance	
<b>S73:</b> Read, interpret, and follow representations, drawings, and graphical information to complete tasks. For example, multicore diagrams, schematics, and core sheets	

Trade Test Theme: Follow construction safety requirements	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K75:</b> Lifting operations – rigging and slinging	
<b>S74:</b> Prove plant, equipment, cabling, and system is safe to work on. For example, prove dead, isolate	
<b>S75:</b> Check earthing is in place. For example, additional earths, equipment earths, and drain earths	
<b>S76:</b> Follow lifting plan	

Trade Test Theme: Install new substation equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K73:</b> Fixing systems: unistrut, rawl bolts, chemical fixing anchors and proof loading, shims, and grouting for base plates	



Trade Test Theme: Install new substation equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>S79:</b> Locate and fix high voltage switchgear	

Trade Test Theme: Install earthing associated with substations	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K68:</b> Commercial gas: storage, transportation, and safe use	
<b>K72:</b> System earthing requirements: selection of materials and equipment for above and below ground earthing systems, installation, mechanical connections, welding, and brazing	
<b>S81:</b> Apply mechanical connections, brazing, and welding techniques	
<b>S82:</b> Lay and fix earth tape within excavation and to plant and equipment	

Trade Test Theme: Install and terminate multi-core cables and containment systems	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K70:</b> Multi-core wiring requirements: installation, termination (glanding, looming, crimping, and ferruling), labelling and identification system	
<b>S85:</b> Select, position, and connect multi-core wiring including glanding, looming, crimping, and ferruling. For example, panel wiring within a protection panel and switchgear. Apply labelling and identification system	



Trade Test Theme: Conduct testing on installed equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
<b>K76:</b> Testing procedures: voltage, polarity, insulation resistance, three-phase testing, phase rotation, earth loop impedance, continuity, and joint resistance	
<b>K82:</b> Mechanical testing requirements	
<b>K83:</b> Oil sampling methods and requirements	
<b>S86:</b> Use test instruments. For example, volt meters, multi-function tester, and resistance tester	
<b>S87:</b> Conduct mechanical testing. For example, torque and proof loading	
<b>S88:</b> Conduct alignment checks	
<b>S89:</b> Take oil samples for testing	
<b>S91:</b> Interpret test results and action as required	





Employer Declaration	
This is to confirm that our Trade Test Practical Assessment documentation maps to the Assessment Requirements as detailed above. A copy of the documentation has been provided for reference.	
Employer Name	
Contact Name:	
Job Title:	
Signature:	
Date:	

EUIAS Use Only			
Copy documentation received		Mapping references confirmed	
Start / End date and Total Time of TT documented		KSBs observed to be documented	
Space to document ending assessment early		Apprentice's responses to be documented	
Guidance includes identified simulated environment(s)/ locations		KSBs demonstrated in answers to questions are indicated	
Tasks (a)-(k) covered in employer-set tasks		Preliminary grade achieved recorded	



EUIAS Use Only			
KSBs are mapped to the assessment		Guidance for resits / different questions / different tasks	
Guidance includes statement 'must ask at least 10 questions		Published grading descriptors are used	
EUIAS date of review			

**Comments**



## Appendix D: Trade Test Technical Interview Requirements and Mapping Form

# Trade Test Technical Interview Mapping Summary

## Technical Interview Documentation

The following documentation must be provided to EUIAS upon request. This forms part of EUIAS' quality assurance process for the PISF Standard. Please complete the table below by adding a reference(s) to your own paperwork in the document references column.

Documentation Requirements	Please provide the document filename(s)
Employer Assessor <i>training materials</i>	
Employer Assessor documentation	
Guidance for Employer Assessors	
Grading guidance	
Question bank	
Guidance for apprentice and their manager	

## Technical Interview Requirements

Please complete the table below by adding a reference(s) to your own paperwork in the document references column to indicate the page(s) that where evidence of the technical interview requirements is found in your trade test paperwork.

Technical Interview Requirements	Please provide a document reference of where your documentation references the requirement
Space for the start and end time of TI to be documented <i>This will confirm that the TI has lasted at least 60 minutes</i>	
Space to document an apprentice's request to end assessment early and indicate employer assessor suggested assessment continues	
TI date documented	
Guidance includes resource requirements e.g. quiet place, procedures for remote interview	
Process in place to identify the identity of the apprentice and ensure the apprentice is not being aided	
Guidance to employer assessor includes statement 'must ask at least 6 questions (one for each theme minimum)'	
Space for apprentice's responses to be documented	
KSBs demonstrated in answers to questions are indicated	
Preliminary grade achieved recorded	
Guidance for resits / different questions	

## Assessor Documentation

Please complete the table below by adding a reference(s) to your own paperwork in the document references column to indicate the page(s) that where evidence of the grading statements is found in your completed trade test paperwork. If there are sub bullets i.e. parts a, b, c etc then it would be helpful to identify where evidence for each of those sub bullets would be found.

### Core

Trade Test Theme: Role and responsibilities	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Outlines their role as a substation fitter including their limits of responsibility and how they escalate issues. (K4, S22, B4)	
Describes how they respond and adapt to work demands in line with organisational requirements. (K4, S22, B4)	
Explains the responsibilities of persons as defined in the industry standard safety rules: supervising a working party, competent persons, and authorisation roles and responsibilities in relation to working under safety documentation. (K5)	

Trade Test Theme: Electrical danger - control and first aid	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains the dangers of electricity and how an electric shock can be received including direct contact, induced (impressed) voltage, and arcing. Outlines electric shock emergency procedures in line with company procedures (K8)	
Explains safe systems of work on high voltage and low voltage equipment to ensure safety from the inherent dangers of the system (K42)	
Describes how they would respond in the event of a first aid emergency, with reference to their emergency first aid training and responsibilities and measures they would take to avoid electrical risk in line with company procedures (K11, S9)	

Trade Test Theme: Working at height	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they use working at height access equipment with reference to hierarchy of methods for working at height and inspection, operation, and maintenance requirements for	

<b>Trade Test Theme: Working at height</b>	Please provide a document reference of where the assessor is assessing the grading descriptor
mobile working platforms, scaffolding and ladders in line with company procedures (K12 K13 S15 S16)	
Describes how they use personal protective equipment: harnesses, fall restraint and arrest equipment suitable for the context with reference to user inspection, operation, and maintenance requirements (K12 K13 S15 S16)	
Outlines rescue from height equipment and methods in line with company procedures (K12 K13 S15 S16)	

<b>Trade Test Theme: Asset security</b>	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they apply asset security measures in line with company procedures ( K16 S11)	

<b>Trade Test Theme: Insulating mediums</b>	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	



Trade Test Theme: Insulating mediums	Please provide a document reference of where the assessor is assessing the grading descriptor
Explains the advantages and disadvantages of different types of insulating mediums used in high voltage equipment including insulating oil, SF6 gas, vacuum, air, and SF6 alternatives (K38)	

Trade Test Theme: Methods of cooling transformers	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains the advantages and limitations of different methods of cooling transformers including natural, pump forced, and fan forced. Along with the methods of control and associated protection if overheating occurs (K39)	

Trade Test Theme: Handling and transportation of insulation oil	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains considerations for the handling or transportation of insulating oil (bulk and drums) including reducing risk of spillage, bunding requirements, hygiene, barrier creams,	

Trade Test Theme: Handling and transportation of insulation oil	Please provide a document reference of where the assessor is assessing the grading descriptor
specialist PPE, pumps, storage, labelling containers, manual handling, and disposal in line with company procedures (K40)	

Trade Test Theme: Determining insulating oil integrity	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains methods of determining insulating oil electrical integrity or presence of contaminants with reference to dielectric strength, moisture, acidity, polychlorinated biphenyl (PCB), and carbonisation (K41)	

## Distribution maintenance

Trade Test Theme: Functional tests	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains the functional checks and routine basic maintenance of substation equipment including breather gels, Automatic Voltage Control systems, cooling systems, bund pumps, battery monitoring alarms, oil pressure alarms, and Transient Earth Voltage (TEV) testing in line with company procedures (K46)	
Trade Test Theme: Jointing earthing conductors	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they joint earthing conductors using mechanical compression joints and conduct electrical testing of earth electrodes using a digital earth resistance tester in line with company procedures ( K55 S42 S43)	

Trade Test Theme: Ground mounted distribution oil filled switchgear maintenance	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains routine ground mounted distribution oil filled switchgear maintenance requirements in line with company procedures including removal and replacement of oil, cleaning of internal tanks and components, inspection and replacement of gaskets, lubrication of external mechanisms (K48)	

Trade Test Theme: Transformers maintenance requirements	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains distribution primary transformer and ancillary equipment maintenance requirements in line with company requirements (K50)	

Trade Test Theme: Air break disconnectors maintenance requirements	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains air break switch disconnectors maintenance requirements in line with company procedures for motorised load breaking and manual non-load breaking equipment (K51)	

## Transmission maintenance

Trade Test Theme: Insultation testing	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they conduct insulation testing using an insulation test instrument in line with task requirements and company procedures ( K58 S58)	

Trade Test Theme: Insulation medium maintenance	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they remove and replace insulating medium and clean equipment following its removal in line with task requirements and company procedures (S59, S60)	
Describes how they check circuit breaker contact condition and remove and replace or dress in line with task requirements and company procedures (S61)	

Trade Test Theme: Battery maintenance	Please provide a document reference of where the assessor is assessing the grading descriptor
---------------------------------------	---

<b>Pass descriptors</b>	
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Describes how they conduct wet cell and sealed battery maintenance including checking battery connections for any damage, cleaning cells, checking monitoring alarms, and checking function of charging equipment and test substation batteries using voltage and analytical testing instruments in line with task requirements and company procedures ( K65 S67 S68)	
---	--

Trade Test Theme: Transmission equipment maintenance	Please provide a document reference of where the assessor is assessing the grading descriptor
--	---

<b>Pass descriptors</b>	
-------------------------	--

Describes how they conduct transformer maintenance including tap changers, Buchholz relay, WTI, qualitrol, breathers, surge arrestors, coordinating gaps, arcing horns, insulator checks and recalibrating (LNER) in line with task requirements and company procedure (K61, S70)	
Describes how they conduct air system maintenance including making new pipework HP fittings, air leak detection and gas	

Trade Test Theme: Transmission equipment maintenance	Please provide a document reference of where the assessor is assessing the grading descriptor
leak detection in line with task requirements and company procedures (K63, S71)	
Describes how they conduct ancillary equipment maintenance including isolator dynamic torque testing in line with task requirements and company procedures (K64, S72)	

Trade Test Theme: Condition monitoring processes	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains the condition monitoring processes and equipment used within their area of operation (K60)	



## Construction

Trade Test Theme: Construction equipment and cabling installation	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they install batteries in line with company procedures (K81, S77)	
Describes how they position transformers in line with company procedures (S78)	
Describes how they select, position, and install a given containment management system in line with company procedures (K69, S83)	
Explains the internal and external positioning requirements when installing plant, metal structures, and apparatus (K74)	
Trade Test Theme: AC/DC (alternating current and direct current) supply power cable and power wiring installation	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they select, position, and install AC/DC supply power cable and power wiring in line with company requirements (K71 S80)	

Trade Test Theme: Diagnostic fault-finding techniques	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they use diagnostic fault-finding techniques to investigate issues with equipment (K77 S90)	
Trade Test Theme: Plant and equipment locking devices and interlocking systems requirements	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Explains plant and equipment locking devices and interlocking systems requirements in their company (K78)	
Trade Test Theme: Producing wiring core sheets from wiring diagrams	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they produce wiring core sheets from wiring diagrams in line with company procedures (S83)	

Trade Test Theme: Replacing components	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they replace components within equipment in line with company procedures (S92)	
Trade Test Theme: Removing cabling and equipment	Please provide a document reference of where the assessor is assessing the grading descriptor
<b>Pass descriptors</b>	
Describes how they remove cabling and equipment in line with company procedures (S93)	

### Employer Declaration

This is to confirm that our Trade Test Technical Interview documentation maps to the Assessment Requirements as detailed above. A copy of the requested documentation has been provided for reference:

Employer Name

Contact Name:

Job Title:

Signature:

Date:

EUIAS Use Only			
Copy documentation received		Guidance includes resource requirements e.g. quiet place, procedures for remote interview	
Mapping references confirmed		Guidance for resits / different questions	
Start / End time of TI documented		Published grading descriptors are used	
TI date documented		Apprentice's responses recorded	
Space to document ending assessment early		KSBs demonstrated in answers to questions are indicated	
Guidance includes statement 'must ask at least 6 questions (one for each theme minimum)'		Preliminary grade achieved recorded	
EUIAS date of review			

<b>Comments</b>
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## Appendix E: Practice Multiple-choice Test

## Level: 3

### Power Industry Substation Fitter

### Supporting Document: Practice Paper

This examination consists of 40 multiple-choice questions.

The Pass mark is 28 correct answers.

The duration of this examination is 60 minutes.

You are NOT allowed any assistance to complete the answers.

You must use a **pencil** to complete the answer sheet - pens must NOT be used.

When completed, please leave the examination answer sheet and question paper on the desk.

For this paper the use of a scientific calculator (non-programmable) is permitted.

For each question, fill in ONE answer ONLY.

If you make a mistake, ensure you erase it thoroughly.

You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:

<b>MARKING INSTRUCTIONS</b>	
<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input checked="" type="radio"/> D	<b>ANSWER COMPLETED CORRECTLY</b>
Examples of how NOT to mark your examination sheet. <b>These will not be recorded</b>	
<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D	<b>DO NOT</b> partially shade the answer circle.
<input type="radio"/> A <input type="radio"/> B <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> D	<b>DO NOT</b> use ticks or crosses.
<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D	<b>DO NOT</b> use circles.
<input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input checked="" type="radio"/> D	<b>DO NOT</b> shade over more than one circle.

You may use this page for rough work. This page must not be removed.



### Question 1

What is a key difference between IDNOs (Independent Distribution Network Operators) and traditional DNOs (Distribution Network Operators)?

#### Possible answers

a)	IDNOs operate only in rural areas, while DNOs operate in urban areas
b)	IDNOs can operate nationwide without regional restrictions, while DNOs have specific geographic regions
c)	IDNOs generate electricity, while DNOs distribute it
d)	IDNOs regulate electricity prices, while DNOs do not

### Question 2

What is the significance of cross-border electricity flows managed by Transmission Network Operators (TNOs)?

#### Possible answers

a)	They help balance supply and demand across regions
b)	They increase the cost of electricity
c)	They reduce the reliability of the grid
d)	They are only used in emergencies

### Question 3

To achieve their objectives, Ofgem operate a statutory framework set by the:

#### Possible answers

a)	European Court of Human Rights
b)	Confederation of British Industry
c)	Department for Business, Enterprise and Regulatory Reform
d)	UK Parliament

<b>Question 4</b>	
Identify ONE of the basic requirements of The Electricity at Work Regulations 1989.	
<b>Possible answers</b>	
a)	Employers must assess electrical risks and implement appropriate control measures
b)	Outlines quality standards for the voltage levels
c)	Employers must follow its guidelines for designing and installing electrical systems
d)	Sets standards for the frequency and duration of power outages

<b>Question 5</b>	
The Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR) state that network owners shall ensure that their equipment is constructed, installed, protected, used and maintained to prevent danger, in which two areas?	
<b>Possible answers</b>	
a)	Electrical and mechanical operation
b)	Daytime and night-time working practices
c)	Indoor and outdoor asset housings
d)	Urban and rural locations

<b>Question 6</b>	
Identify ONE role of customer feedback in power industry operations.	
<b>Possible answers</b>	
a)	To increase operational risks
b)	To improve service quality
c)	To increase operational costs
d)	To reduce energy production

### Question 7

Identify ONE significant financial challenge for the UK power industry in achieving net-zero emissions by 2050.

#### Possible answers

a)	Increasing operational inefficiencies
b)	High initial investment costs
c)	Decreasing energy demand
d)	Lack of regulatory support

### Question 8

If asbestos is left undisturbed and is in a reasonably good visible condition, which ONE of the following practices should the company adopt?

#### Possible answers

a)	By law, the company must remove the asbestos
b)	Carry out an inspection on an ad-hoc basis
c)	The asbestos should be removed from sight by use of boxing-in
d)	The asbestos should be left in-situ and monitored

### Question 9

In the context of the Construction (Design and Management) Regulations 2015 (CDM 2015), what are individuals such as overhead linesmen, cable jointers and substation fitters defined as?

#### Possible answers

a)	Controller
b)	Designer
c)	Worker
d)	Delegate

**Question 10**

According to Section 2 of the Health and Safety at Work Act 1974, it is the responsibility of every employer, as far as is reasonably practicable, to ensure employees:

**Possible answers**

a)	health, safety and welfare
b)	have opportunities for future financial incentives
c)	have access to flexible working procedures
d)	Personal Protective Equipment (PPE) fits correctly

**Question 11**

Which ONE of the following substances is covered by the Control of Substances Hazardous Health Regulations 2002 (COSHH)?

**Possible answers**

a)	White spirit
b)	Radioactive substances
c)	Lead
d)	Asbestos


**Question 12**

Regulation 8(2) of the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) defines a lifting operation as 'an operation concerned with the lifting or lowering of:

**Possible answers**

a)	a pallet
b)	a load
c)	plant and switchgear
d)	any item requiring more than two persons to lift it

Question 13	
What type of sign is this?	
Possible answers	
a)	Prohibition
b)	Warning
c)	Mandatory
d)	Help



Question 14	
According to The Confined Spaces Regulations 1997, before work commences, which ONE of the following key duties must be fulfilled?	
Possible answers	
a)	The local weather forecast is consulted
b)	Inspection and maintenance records data are referred to for guidance
c)	Vehicles near the work area are moved outside a five metre exclusion zone
d)	Adequate emergency arrangements must be put in place

Question 15	
Identify ONE purpose of the Environmental Protection Act (EPA) 1990.	
Possible answers	
a)	To increase industrial production
b)	To reduce government regulations
c)	To promote urban development
d)	To improve control of pollution

<b>Question 16</b>	
What is the purpose of a bund in oil storage?	
<b>Possible answers</b>	
a)	To increase storage capacity
b)	To provide secondary containment
c)	To reduce oil temperature
d)	To measure oil levels

<b>Question 17</b>	
What is the main benefit of using oil containment systems in substations?	
<b>Possible answers</b>	
a)	Lower cost
b)	Higher efficiency
c)	Environmental protection
d)	Increased oil pressure

<b>Question 18</b>	
What is the primary use of Sulfur Hexafluoride (SF6) in substations?	
<b>Possible answers</b>	
a)	Cooling transformers
b)	Insulating electrical equipment
c)	Generating electricity
d)	Lubricating moving parts

<b>Question 19</b>	
What certification is required to handle SF6 in high voltage switchgear?	
<b>Possible answers</b>	
a)	ISO 9001
b)	HSE certification
c)	NEBOSH certification
d)	F-gas handling certificate

<b>Question 20</b>	
A substation needs to supply power to a residential area with 50 houses. Each house has an average power consumption of 5 kW.	
Calculate the total load in kW using the following formula	
Total Load = (Number of Houses) x (Average Power Consumption per House)	
<b>Possible answers</b>	
a)	200 kW
b)	250 kW
c)	300 kW
d)	350 kW

<b>Question 21</b>	
A substation is designed to handle a peak load of 800 kW. If the current load is 600 kW, what percentage of the substation's capacity is being used?	
<b>Possible answers</b>	
a)	60%
b)	70%
c)	75%
d)	80%

<b>Question 22</b>	
A cable is to be laid diagonally across a square area with each side measuring 50 meters. What is the length of the cable, to 1 decimal place?	
<b>Possible answers</b>	
a)	50.0 metres
b)	70.7 metres
c)	100.0 metres
d)	141.4 metres

<b>Question 23</b>	
A substation fitter needs to calculate the surface area of a transformer cubical housing with each side measuring 4 metres. What is the surface area of the cubical housing?	
<b>Possible answers</b>	
a)	64 metres <sup>2</sup>
b)	96 metres <sup>2</sup>
c)	128 metres <sup>2</sup>
d)	144 metres <sup>2</sup>

<b>Question 24</b>	
Which ONE of the following best describes mass?	
<b>Possible answers</b>	
a)	The amount of matter in an object
b)	The force exerted by an object due to gravity
c)	The amount of space an object occupies
d)	The energy possessed by an object



<b>Question 25</b>	
What is tensile strength?	
<b>Possible answers</b>	
a)	The ability of a material to resist deformation
b)	The maximum stress a material can withstand while being pulled before breaking
c)	The ability of a material to return to its original shape after deformation
d)	The resistance of a material to scratching or abrasion

<b>Question 26</b>	
Which ONE of the following factors does <b>NOT</b> affect the mechanical advantage of a lever?	
<b>Possible answers</b>	
a)	Length of the input arm
b)	Length of the output arm
c)	Position of the fulcrum
d)	Weight of the lever

<b>Question 27</b>	
Which ONE of the following is true for a system in static equilibrium?	
<b>Possible answers</b>	
a)	The system must be at rest
b)	The system must be accelerating
c)	The system must be moving at a constant velocity
d)	The sum of all external forces and moments must be zero

<b>Question 28</b>	
What is the unit of magnetic flux?	
<b>Possible answers</b>	
a)	Farad
b)	Henry
c)	Tesla
d)	Weber

<b>Question 29</b>	
Which law explains the operation of transformers?	
<b>Possible answers</b>	
a)	Ohm's Law
b)	Faraday's Law of Electromagnetic Induction
c)	Coulomb's Law
d)	Kirchhoff's Law

<b>Question 30</b>	
What is the main advantage of using renewable energy sources for power generation?	
<b>Possible answers</b>	
a)	Lower initial cost
b)	Unlimited supply
c)	Higher efficiency
d)	Easier maintenance

**Question 31**

Which ONE of the following would cause a fuse to operate?

**Possible answers**

a)	High resistance
b)	Excessive voltage
c)	Low impedance
d)	Fault current

**Question 32**

Which ONE of the following is a common material used for busbars?

**Possible answers**

a)	Iron
b)	Aluminum
c)	Silver
d)	Steel

**Question 33**

What is the principal design feature of a withdrawable HV circuit breaker?

**Possible answers**

a)	Saves energy
b)	Is single use only
c)	Requires no maintenance
d)	Can be removed from its housing

<b>Question 34</b>	
Which liquid is used to cool transformers?	
<b>Possible answers</b>	
a)	Liquid oxygen
b)	Liquid nitrogen
c)	Water
d)	Oil

<b>Question 35</b>	
Which mechanism on a transformer actively changes voltage levels as required?	
<b>Possible answers</b>	
a)	Core
b)	Windings
c)	Tap changer
d)	Winding temperature indicator

<b>Question 36</b>	
On a substation low-voltage (LV) distribution board, what is the main purpose of the isolator?	
<b>Possible answers</b>	
a)	To connect/disconnect the incoming transformer supply
b)	To earth the busbars
c)	To connect outgoing cables
d)	To supply batteries

<b>Question 37</b>	
What is the purpose of air compressors in substations?	
<b>Possible answers</b>	
a)	To generate electricity
b)	To cool transformers
c)	To power pneumatic tools
d)	To operate circuit breaker mechanisms

<b>Question 38</b>	
At a primary substation in the UK, the voltage is typically stepped down from:	
<b>Possible answers</b>	
a)	400 kV to 132 kV
b)	132 kV to 33 kV
c)	33 kV to 11 kV
d)	11 kV to 400/230 V

<b>Question 39</b>	
Which ONE of the following contains a vacuum interrupter?	
<b>Possible answers</b>	
a)	Circuit breaker
b)	Earth switch
c)	Neutral Earth Resistor (NER)
d)	Disconnecter

<b>Question 40</b>	
What is the main feature of a Neutral Earth Resistor (NER)?	
<b>Possible answers</b>	
a)	Reduce losses
b)	Improve power factor
c)	Providing a substation earth
d)	Limiting fault current

End of Questions

## Practice Multiple-choice Test

### Answer scheme

Question	Answer	Question	Answer	Question	Answer
1	B	15	D	29	B
2	A	16	B	30	B
3	D	17	C	31	D
4	A	18	B	32	B
5	A	19	D	33	D
6	B	20	B	34	D
7	B	21	C	35	C
8	D	22	B	36	A
9	C	23	B	37	D
10	A	24	A	38	C
11	A	25	B	39	A
12	B	26	D	40	D
13	B	27	D		
14	D	28	D		

## Appendix F: Practice Interview Based on an EPA Portfolio Form



## Power Industry Substation Fitter Distribution Maintenance

### Interview

Full Name of Apprentice	
Apprentice ID checked	<input type="checkbox"/>
Location of End-point Assessment	
Full Name of Independent Assessor	
Date of Interview	
Start Time	
End Time	
Apprentice asked to end the assessment early (check the box)	<input type="checkbox"/>
Ind. Assessor suggested assessment continues (check the box)	<input type="checkbox"/>
Resit (check the box)	<input type="checkbox"/>
Assessor additional comments	

	Grade
Please indicate the apprentice's preliminary grade for the interview (F/P/D):	

By signing below, I confirm that the information provided is correct and the preliminary grade awarded is a true reflection of the performance by the apprentice.

<b>Independent Assessor Full Name and Signature:</b>	<b>Date:</b>
--	--------------

**Please Note:**

To achieve a Pass, the Apprentice must achieve all the pass descriptors.

To achieve a Distinction, the Apprentice must achieve all the pass descriptors and **all** the distinction descriptors.

Fail: the apprentice does not demonstrate all the pass descriptors.

## Introduction

At the start of the interview the assessor will:

- Introduce themselves
- State their role
- State the date of the interview
- Request and confirm ID from the apprentice prior to beginning the assessment
- Provide apprentice with information on the format of the with questions, including the timescales they will be working to.

The apprentice will:

- Confirm their full name
- Confirm their date of birth
- Give their employer's name
- Confirm their location and that no one else is present in the room, if remote apprentice to pan camera 360°
- Confirm they are prepared for the interview; and confirm they can continue with the interview
- Confirm that the evidence within the portfolio relates to the KSB's that will be assessed during the interview.

## Important points to inform the apprentice

- Please don't judge anything by the notes being taken, nor infer anything positive or negative from how long the interview lasts.
- Please don't consider me rude if I tell you that we need to move onto the next question. This will ensure that you get the opportunity to fully demonstrate your competencies within the time allowed.
- Ensure the apprentice has a drink of water to hand
- Please ensure that your mobile is switched off or placed somewhere where you will not be interrupted during the interview.
- Confirm that a sign is placed on the door of the interview room. Interview in progress 'Do not disturb'.

Note: The live interview will be fully recorded for the purpose of audit and quality assurance

## Assessor Guidance

### Delivery

- The interview will last 75 minutes. An additional 10% is allowed for the apprentice to complete their last answer
- You must be in full control. Time management is key! If the apprentice veers off track, they need to be reined back in
- The apprentice may choose to end the assessment method early
- You must ensure the apprentice is fully aware of all assessment requirements
- You cannot suggest or choose to end the assessment methods early, unless in an emergency
- You must ensure the apprentice understands the implications of ending an assessment early if they choose to do so
- You may suggest the assessment continues
- You must document the apprentice's request to end the assessment early
- You must ask a minimum of **seven** open questions
- The purpose of the questions is to cover the following topics: Communication and working with others; Sustainability; CPD and improvement activities; Working on the highway and location and avoidance of utilities
- Please work through the sections in the order they appear within this document
- Additional follow-up questions are allowed to seek clarification and to make a judgement against grading descriptor
- The text of additional questions must be recorded on this document
- Adapt the questions to the apprentice's circumstances following your review of their portfolio evidence
- Supply brief written notes where each criterion has been met
- If the apprentice does not achieve a descriptor, provide written notes that EUIAS can feed back to the apprentice to help the apprentice prepare for a resit
- Both the recording and the written notes will be subject to IQA.

At the end of the interview - Thank the apprentice for their time

**Task 1: Communication and working with others**

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they communicate in a professional manner by using communication techniques and industry terminology suitable for the context	<input type="checkbox"/>	Justifies the application of teamworking principles to meeting work goals	<input type="checkbox"/>
Describes how they apply written communication techniques to produce or amend documents in their work that are suitable for the context	<input type="checkbox"/>		
Describes how they use information and digital technology – computers and mobile devices - in their work in compliance with their organisation's cyber security requirements. Outlines the requirements of the General Data Protection Regulation (GPDR)	<input type="checkbox"/>		
Describes how they apply team working principles to meet work goals and support inclusivity in line with their company's policy on equality, diversity, and inclusion	<input type="checkbox"/>		

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	



<b>Fail</b> <input type="checkbox"/>	<b>Pass</b> <input type="checkbox"/>	<b>Distinction</b> <input type="checkbox"/>
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**K24 K26 S21 S24 B5** Communication  
**K27 S25** Information and digital technology  
**K28 K29 S20 B6** Teamwork

Task 2: Sustainability

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they consider and apply the principles of sustainability and the circular economy in their own work to support their employer's and the power industry's net zero strategy with reference to the impact of sites of special scientific interest, flora and fauna on work, and the potential effects on the environment of companies and individuals not complying with good environmental practices	<input type="checkbox"/>	Justifies the application of sustainability practices in the power industry	<input type="checkbox"/>

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

<b>Fail</b> <input type="checkbox"/>	<b>Pass</b> <input type="checkbox"/>	<b>Distinction</b> <input type="checkbox"/>
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**K18 S12 B2 Sustainability**

Task 3: CPD and improvement activities

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they have identified an area for improvement in the workplace	<input type="checkbox"/>	Justifies the potential impact of the improvement suggestion with consideration to benefits and any potential risks	<input type="checkbox"/>
Outlines the planned and unplanned learning and development activities they have carried out and recorded and shows a commitment to future continued professional development to maintain and enhance competence	<input type="checkbox"/>		

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

Fail <input type="checkbox"/>	Pass <input type="checkbox"/>	Distinction <input type="checkbox"/>
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**S19** Contribute to improvement activities  
**S26 B7** Continued professional development

**Task 4: Working on the highway and location and avoidance of utilities**

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors
Describes how they conduct plant or vehicle checks in line with company requirements	<input type="checkbox"/>	
Explains requirements for safe excavation and signing, lighting, and guarding in line with the New Roads and Street Works Act	<input type="checkbox"/>	
Explains the access to private land, streets, and wayleaves permissions in terms of impact on role	<input type="checkbox"/>	
Explains methods for locating and avoiding utilities and avoiding danger from underground services and overhead exposed conductors in line with the health and safety executive guidance and requirements: HSG 47 (Avoiding danger from underground services) and GS6 (Avoiding danger from overhead power lines)	<input type="checkbox"/>	

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

<b>Fail</b> <input type="checkbox"/>	<b>Pass</b> <input type="checkbox"/>	
<b>Summary of response to question(s):</b> Box will expand to take all comments		



**Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria**

Box will expand to take all comments

**K15 S14** Plant or vehicle checks

**K52 K53** New Roads and Street Works Act and access to private land, streets and wayleaves

**K54** Location and avoidance of utilities

## Power Industry Substation Fitter Transmission maintenance Interview

Full Name of Apprentice	
Apprentice ID checked	<input type="checkbox"/>
Location of End-point Assessment	
Full Name of Independent Assessor	
Date of Interview	
Start Time	
End Time	
Apprentice asked to end the assessment early (check the box)	<input type="checkbox"/>
Ind. Assessor suggested assessment continues (check the box)	<input type="checkbox"/>
Resit (check the box)	<input type="checkbox"/>
Assessor additional comments	

	Grade
Please indicate the apprentice's preliminary grade for the interview (F/P/D):	

By signing below, I confirm that the information provided is correct and the preliminary grade awarded is a true reflection of the performance by the apprentice.

<b>Independent Assessor Full Name and Signature:</b>	<b>Date:</b>

**Please Note:**

To achieve a Pass, the Apprentice must achieve all the pass descriptors.

To achieve a Distinction, the Apprentice must achieve all the pass descriptors and **all** the distinction descriptors.

Fail: the apprentice does not demonstrate all the pass descriptors.

## Introduction

At the start of the interview the assessor will:

- Introduce themselves
- State their role
- State the date of the interview
- Request and confirm ID from the apprentice prior to beginning the assessment
- Provide apprentice with information on the format of the with questions, including the timescales they will be working to.

The apprentice will:

- Confirm their full name
- Confirm their date of birth
- Give their employer's name
- Confirm their location and that no one else is present in the room, if remote apprentice to pan camera 360°
- Confirm they are prepared for the interview; and confirm they can continue with the interview
- Confirm that the evidence within the portfolio relates to the KSB's that will be assessed during the interview.

## Important points to inform the apprentice

- Please don't judge anything by the notes being taken, nor infer anything positive or negative from how long the interview lasts.
- Please don't consider me rude if I tell you that we need to move onto the next question. This will ensure that you get the opportunity to fully demonstrate your competencies within the time allowed.
- Ensure the apprentice has a drink of water to hand
- Please ensure that your mobile is switched off or placed somewhere where you will not be interrupted during the interview.
- Confirm that a sign is placed on the door of the interview room. Interview in progress 'Do not disturb'.

Note: The live interview will be fully recorded for the purpose of audit and quality assurance

## Assessor Guidance

### Delivery

- The interview will last 60 minutes. An additional 10% is allowed for the apprentice to complete their last answer
- You must be in full control. Time management is key! If the apprentice veers off track, they need to be reined back in
- The apprentice may choose to end the assessment method early
- You must ensure the apprentice is fully aware of all assessment requirements
- You cannot suggest or choose to end the assessment methods early, unless in an emergency
- You must ensure the apprentice understands the implications of ending an assessment early if they choose to do so
- You may suggest the assessment continues
- You must document the apprentice's request to end the assessment early
- You must ask a minimum of **five** open questions
- The purpose of the questions is to cover the following topics: Communication and working with others; Sustainability; CPD and improvement activities; Vehicle and plant checks
- Please work through the sections in the order they appear within this document
- Additional follow-up questions are allowed to seek clarification and to make a judgement against grading descriptor
- The text of additional questions must be recorded on this document
- Adapt the questions to the apprentice's circumstances following your review of their portfolio evidence
- Supply brief written notes where each criterion has been met
- If the apprentice does not achieve a descriptor, provide written notes that EUIAS can feed back to the apprentice to help the apprentice prepare for a resit
- Both the recording and the written notes will be subject to IQA.

At the end of the interview - Thank the apprentice for their time

**Task 1: Communication and working with others**

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they communicate in a professional manner by using communication techniques and industry terminology suitable for the context	<input type="checkbox"/>	Justifies the application of teamworking principles to meeting work goals	<input type="checkbox"/>
Describes how they apply written communication techniques to produce or amend documents in their work that are suitable for the context	<input type="checkbox"/>		
Describes how they use information and digital technology – computers and mobile devices - in their work in compliance with their organisation's cyber security requirements. Outlines the requirements of the General Data Protection Regulation (GPDR)	<input type="checkbox"/>		
Describes how they apply team working principles to meet work goals and support inclusivity in line with their company's policy on equality, diversity, and inclusion	<input type="checkbox"/>		

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

Fail <input type="checkbox"/>	Pass <input type="checkbox"/>	Distinction <input type="checkbox"/>
<p><b>Summary of response to question(s):</b> Box will expand to take all comments</p>		
<p><b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments</p>		

**K24 K26 S21 S24 B5** Communication  
**K27 S25** Information and digital technology  
**K28 K29 S20 B6** Teamwork

**Task 2: Sustainability**

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they consider and apply the principles of sustainability and the circular economy in their own work to support their employer's and the power industry's net zero strategy with reference to the impact of sites of special scientific interest, flora and fauna on work, and the potential effects on the environment of companies and individuals not complying with good environmental practices	<input type="checkbox"/>	Justifies the application of sustainability practices in the power industry	<input type="checkbox"/>

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

<b>Fail</b> <input type="checkbox"/>	<b>Pass</b> <input type="checkbox"/>	<b>Distinction</b> <input type="checkbox"/>
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**K18 S12 B2 Sustainability**

Task 3: CPD and improvement activities

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they have identified an area for improvement in the workplace	<input type="checkbox"/>	Justifies the potential impact of the improvement suggestion with consideration to benefits and any potential risks	<input type="checkbox"/>
Outlines the planned and unplanned learning and development activities they have carried out and recorded and shows a commitment to future continued professional development to maintain and enhance competence	<input type="checkbox"/>		

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

Fail <input type="checkbox"/>	Pass <input type="checkbox"/>	Distinction <input type="checkbox"/>
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**S19** Contribute to improvement activities  
**S26 B7** Continued professional development



Task 4: Vehicle and plant checks

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors
Describes how they conduct plant or vehicle checks in line with company requirements	<input type="checkbox"/>	

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

<b>Fail</b> <input type="checkbox"/>	<b>Pass</b> <input type="checkbox"/>	
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**K15 S14** Plant or vehicle checks

## Power Industry Substation Fitter Construction Interview

Full Name of Apprentice	
Apprentice ID checked	<input type="checkbox"/>
Location of End-point Assessment	
Full Name of Independent Assessor	
Date of Interview	
Start Time	
End Time	
Apprentice asked to end the assessment early (check the box)	<input type="checkbox"/>
Ind. Assessor suggested assessment continues (check the box)	<input type="checkbox"/>
Resit (check the box)	<input type="checkbox"/>
Assessor additional comments	

	Grade
Please indicate the apprentice's preliminary grade for the interview (F/P/D):	

By signing below, I confirm that the information provided is correct and the preliminary grade awarded is a true reflection of the performance by the apprentice.

<b>Independent Assessor Full Name and Signature:</b>	<b>Date:</b>
--	--------------

**Please Note:**

To achieve a Pass, the Apprentice must achieve all the pass descriptors.

To achieve a Distinction, the Apprentice must achieve all the pass descriptors and **all** the distinction descriptors.

Fail: the apprentice does not demonstrate all the pass descriptors.

## Introduction

At the start of the interview the assessor will:

- Introduce themselves
- State their role
- State the date of the interview
- Request and confirm ID from the apprentice prior to beginning the assessment
- Provide apprentice with information on the format of the with questions, including the timescales they will be working to.

The apprentice will:

- Confirm their full name
- Confirm their date of birth
- Give their employer's name
- Confirm their location and that no one else is present in the room, if remote apprentice to pan camera 360°
- Confirm they are prepared for the interview; and confirm they can continue with the interview
- Confirm that the evidence within the portfolio relates to the KSB's that will be assessed during the interview.

## Important points to inform the apprentice

- Please don't judge anything by the notes being taken, nor infer anything positive or negative from how long the interview lasts.
- Please don't consider me rude if I tell you that we need to move onto the next question. This will ensure that you get the opportunity to fully demonstrate your competencies within the time allowed.
- Ensure the apprentice has a drink of water to hand
- Please ensure that your mobile is switched off or placed somewhere where you will not be interrupted during the interview.
- Confirm that a sign is placed on the door of the interview room. Interview in progress 'Do not disturb'.

Note: The live interview will be fully recorded for the purpose of audit and quality assurance

## Assessor Guidance

### Delivery

- The interview will last 75 minutes. An additional 10% is allowed for the apprentice to complete their last answer
- You must be in full control. Time management is key! If the apprentice veers off track, they need to be reined back in
- The apprentice may choose to end the assessment method early
- You must ensure the apprentice is fully aware of all assessment requirements
- You cannot suggest or choose to end the assessment methods early, unless in an emergency
- You must ensure the apprentice understands the implications of ending an assessment early if they choose to do so
- You may suggest the assessment continues
- You must document the apprentice's request to end the assessment early
- You must ask a minimum of **seven** open questions
- The purpose of the questions is to cover the following topics: Communication and working with others; Sustainability; CPD and improvement activities; Location and avoidance of utilities
- Please work through the sections in the order they appear within this document
- Additional follow-up questions are allowed to seek clarification and to make a judgement against grading descriptor
- The text of additional questions must be recorded on this document
- Adapt the questions to the apprentice's circumstances following your review of their portfolio evidence
- Supply brief written notes where each criterion has been met
- If the apprentice does not achieve a descriptor, provide written notes that EUIAS can feed back to the apprentice to help the apprentice prepare for a resit
- Both the recording and the written notes will be subject to IQA.

At the end of the interview - Thank the apprentice for their time

**Task 1: Communication and working with others**

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they communicate in a professional manner by using communication techniques and industry terminology suitable for the context	<input type="checkbox"/>	Justifies the application of teamworking principles to meeting work goals	<input type="checkbox"/>
Describes how they apply written communication techniques to produce or amend documents in their work that are suitable for the context	<input type="checkbox"/>		
Describes how they use information and digital technology – computers and mobile devices - in their work in compliance with their organisation's cyber security requirements. Outlines the requirements of the General Data Protection Regulation (GPDR)	<input type="checkbox"/>		
Describes how they apply team working principles to meet work goals and support inclusivity in line with their company's policy on equality, diversity, and inclusion	<input type="checkbox"/>		

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

Fail <input type="checkbox"/>	Pass <input type="checkbox"/>	Distinction <input type="checkbox"/>
<p><b>Summary of response to question(s):</b> Box will expand to take all comments</p>		
<p><b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments</p>		

**K24 K26 S21 S24 B5** Communication  
**K27 S25** Information and digital technology  
**K28 K29 S20 B6** Teamwork

**Task 2: Sustainability**

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they consider and apply the principles of sustainability and the circular economy in their own work to support their employer's and the power industry's net zero strategy with reference to the impact of sites of special scientific interest, flora and fauna on work, and the potential effects on the environment of companies and individuals not complying with good environmental practices	<input type="checkbox"/>	Justifies the application of sustainability practices in the power industry	<input type="checkbox"/>

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

<b>Fail</b> <input type="checkbox"/>	<b>Pass</b> <input type="checkbox"/>	<b>Distinction</b> <input type="checkbox"/>
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**K18 S12 B2 Sustainability**

### Task 3: CPD and improvement activities

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors	D
Describes how they have identified an area for improvement in the workplace	<input type="checkbox"/>	Justifies the potential impact of the improvement suggestion with consideration to benefits and any potential risks	<input type="checkbox"/>
Outlines the planned and unplanned learning and development activities they have carried out and recorded and shows a commitment to future continued professional development to maintain and enhance competence	<input type="checkbox"/>		

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Distinction questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

Fail <input type="checkbox"/>	Pass <input type="checkbox"/>	Distinction <input type="checkbox"/>
<b>Summary of response to question(s):</b> <small>Box will expand to take all comments</small>		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> <small>Box will expand to take all comments</small>		

**S19** Contribute to improvement activities  
**S26 B7** Continued professional development



**Task 4: Vehicle and plant checks and location and avoidance of utilities**

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P	To achieve a DISTINCTION the apprentice must achieve ALL the pass descriptors and ALL the distinction descriptors
Describes how they conduct plant or vehicle checks in line with company requirements	<input type="checkbox"/>	
Explains vehicle marshalling requirements and limits of their role in line with industry practice	<input type="checkbox"/>	
Explains methods for locating and avoiding utilities and avoiding danger from underground services and overhead exposed conductors in line with the health and safety executive guidance and requirements: HSG 47 (Avoiding danger from underground services) and GS6 (Avoiding danger from overhead power lines)	<input type="checkbox"/>	

<b>Portfolio reference</b>	
<b>Pass questions - to be tailored to apprentice portfolio</b>	
Develop some open-ended questions	
<b>Note any additional questions asked during interview</b>	

<b>Fail</b> <input type="checkbox"/>	<b>Pass</b> <input type="checkbox"/>	
<b>Summary of response to question(s):</b> Box will expand to take all comments		
<b>Feedback that you can provide to the apprentice if the apprentice has failed to meet the Pass criteria</b> Box will expand to take all comments		

**K79** Location and avoidance of utilities  
**K15 S14** Plant or vehicle checks  
**K80** Vehicle marshalling requirements

## Appendix G: Example: Trade Test Practical Assessor Recording Form

# Power Industry Substation Fitter

## Trade Test Practical Assessment with Questions

### Instructions for the employer assessor

#### Delivery

- The trade test practical assessment with questions
  - must take 30 - 37.5 hours.
  - may take place in parts but must be completed over no more than 21 working days. A working day is typically considered to be 7.5 hours long
- You must
  - observe apprentices in line with the employer's trade test assessment specification including the ratio of employer assessors to apprentices. You must be as unobtrusive as possible.
  - explain to the apprentice the format and timescales of the trade test practical assessment with questions tasks before they start. This does not count towards the assessment time
  - ask at least 9 questions. Questioning can occur both during and after the practical assessment
  - use the questions from the employer's question bank or tailor questions to suit individual circumstances
  - write each tailored question below the sample standardised question
- You can ask follow-up questions to clarify answers given by the apprentice. These questions are in addition to the above set number of questions for the trade test practical assessment with questions

The time for questioning is included in the overall assessment time.

Answers to questions, must be documented.

The apprentice may choose to end the assessment method early

- You must ensure the apprentice is fully aware of all assessment requirements
- You cannot suggest or choose to end the assessment methods early, unless in an emergency

- You must ensure the apprentice understands the implications of ending an assessment early if they choose to do so
- You may suggest the assessment continues
- You must document the apprentice's request to end the assessment early

Name of Apprentice	
<input type="checkbox"/> Apprentice ID checked	
Option	
Are Reasonable Adjustments required? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Please give details	
Location of Trade test	
Full Name of Employer Assessor	
Date(s) of Trade Test	
Total Assessment Time	
Apprentice asked to end the assessment early (check the box)	<input type="checkbox"/>
Employer Assessor suggested assessment continues (check the box)	<input type="checkbox"/>

Fail - does not meet pass criteria

To achieve a PASS the apprentice must demonstrate ALL the PASS descriptors for the Core and their option

To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the DISTINCTION descriptors for the Core and their option

Preliminary Grade awarded (Please indicate in the relevant box)	Distinction <input type="checkbox"/>	Pass <input type="checkbox"/>	Fail <input type="checkbox"/>
--	---	----------------------------------	----------------------------------

Employer Assessor Justification for Preliminary Grade awarded:
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Trade Test Practical Assessment Summary	Pass	Distinction
<b>Core</b>		
<b>Group 1: Prepare for substation fitter activities</b>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Group 2: Organise and supervise a working party</b> S5 B3	<input type="checkbox"/>	
<b>Group 3: Maintain work site health, safety, and environment compliance</b> K7 K10 K19 K37 S6 S7 S8 S10 S13 B1	<input type="checkbox"/>	<input type="checkbox"/>
<b>Group 4: Identify apparatus</b> S4	<input type="checkbox"/>	
<b>Group 5: Tools and equipment</b> K23 S17	<input type="checkbox"/>	
<b>Group 6: Complete work records</b> K25 S23	<input type="checkbox"/>	
<b>Distribution maintenance</b>		
<b>Group 7: Use maintenance specifications (distribution)</b> S27	<input type="checkbox"/>	
<b>Group 8: Electrical testing</b> K43 S28 S29 S30 S31 S46 S47	<input type="checkbox"/>	<input type="checkbox"/>
<b>Group 9: Circuit breaker maintenance</b> K44 K47 S32 S33 S34 S35 S36 S37 S38 S39	<input type="checkbox"/>	
<b>Group 10: Battery maintenance</b> K49 S44 S45	<input type="checkbox"/>	
<b>Group 11: Inspection and monitoring of substation equipment</b> K45 S40 S41	<input type="checkbox"/>	
<b>Group 12: Switching operations</b> K56 S48 S49 S50	<input type="checkbox"/>	



Trade Test Practical Assessment Summary	Pass	Distinction
<b>Transmission maintenance</b>		
<b>Group 7: Use maintenance specifications</b> S51	<input type="checkbox"/>	
<b>Group 8: Use elevated work platforms</b> S53	<input type="checkbox"/>	
<b>Group 9: Electrical testing</b> K57 K66 S52 S54 S55 S56 S57 S69	<input type="checkbox"/>	<input type="checkbox"/>
<b>Group 10: Circuit breaker maintenance</b> K59 K62 S62 S63 S64 S65 S66	<input type="checkbox"/>	
<b>Construction</b>		
<b>Group 7: Use engineering representations, drawings, and graphical information</b> K67 S73	<input type="checkbox"/>	
<b>Group 8: Follow construction safety requirements</b> K75 S74 S75 S76	<input type="checkbox"/>	
<b>Group 9: Install new substation equipment</b> K73 S79	<input type="checkbox"/>	
<b>Group 10: Install earthing associated with substations</b> K68 K72 S81 S82	<input type="checkbox"/>	
<b>Group 11: Install and terminate multi-core cables and containment systems</b> K70 S85	<input type="checkbox"/>	
<b>Group 12: Conduct testing on installed equipment</b> K76 K82 K83 S86 S87 S88 S89 S91	<input type="checkbox"/>	<input type="checkbox"/>

## Introduction

At the start of the trade test the Employer Assessor will:

- Introduce themselves
- Confirm their role
- Provide apprentice with information on the format of the trade test, including the timescales they will be working to.

(The Employer Assessor can share the grading guidance with the apprentice as this appears in the assessment plan)

The apprentice will:

- Give their full name
- Their date of birth
- Their employer name
- Confirm they are prepared for the trade test; and confirm they can continue with the trade test.

The apprentice will be asked to show their identification to the Employer Assessor prior to beginning the assessment

## Important points to inform the apprentice

- If at any point during the trade test you perform an unsafe act/task which contravenes Health and Safety, I will immediately stop the trade test.
- Please do not judge anything by me taking notes and you should not infer anything positive or negative from how long the trade test lasts.
- Ensure that your mobile is turned off or placed somewhere where you will not be interrupted during the trade test.



Group 1: Prepare for substation fitter activities

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>		<b>P</b>
Reviews drawings, instructions, or information to understand the task's requirements. (S1)	<input type="checkbox"/>	
Plans tasks and identifies and organises resources required to complete tasks for self and working party using planning, prioritising, organisation, and time management techniques with consideration for safety, environmental impact, quality, and cost. (K22, S2, S3)	<input type="checkbox"/>	
<b>To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the following:descriptors</b>		<b>D</b>
Justifies their planning in terms of efficiencies achieved and the balance of safety, environmental impact, quality, and cost in planning decisions.	<input type="checkbox"/>	
<b>Comments: (what was observed)</b>		
<b>Questions to help evidence the Pass and Distinction descriptors above</b> Develop some open-ended questions		
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 1: Prepare for substation fitter activities</b>		
Group 1 - Fail	<input type="checkbox"/>	

Group 1 - Pass	<input type="checkbox"/>	
Group 1 - Distinction	<input type="checkbox"/>	

**K22:** Planning, prioritising, organisation, and time management techniques for self and working party

**S1:** Review drawings, instructions, or information to understand the task for example, work instructions, design specifications, utility plans, on-line search documents

**S2:** Prioritise and plan tasks with consideration for safety, environmental impact, quality, and cost

**S3:** Identify and organise resources to complete tasks for example, consumables

**S18:** Select, check, and prepare resources.

Group 2: Organise and supervise a working party

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Receives and clears a safety document and briefs a working party in line with company requirements taking ownership for work and responsibility for the impact of the work on others.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 2: Organise and supervise a working party</b>	
Group 2 - Fail	<input type="checkbox"/>
Group 2 - Pass	<input type="checkbox"/>

**S5:** Receive and clear a safety document. Brief a working party

**B3:** Take ownership for work and responsibility for its impact on others. For example, self-motivated, disciplined in the approach to work tasks, identify and deal appropriately with distractions to enable tasks to be achieved, work carried out in line with standards

Group 3: Maintain work site health, safety, and environment compliance

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Follows company's substation access and egress procedures to control hazards including security, pre-entry checks, logging in requirements, automatic or remotely operated equipment, and fire suppression systems. (K37, S6)	<input type="checkbox"/>
Identifies hazards and risks in the workplace including consideration of hazards associated with work on or near electrical power networks and applies control measures including demarcation systems to identify equipment made safe for work.	<input type="checkbox"/>
Prioritises and applies health and safety procedures in compliance with regulations and standards mitigating against risks including emergency procedures, personal protective equipment, manual handling, and fire safety. (K7, K10, S7, S8, B1)	<input type="checkbox"/>
Applies measures to leave power work environments in a safe and secure condition in line with company procedures. (S10)	<input type="checkbox"/>
Segregates resources for reuse, recycling, and waste handling in line with company procedures for recycling and waste transfer (K19, S13)	<input type="checkbox"/>

To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the following:descriptors	D
Justifies how the controls they applied eliminated or reduced risks to an acceptable level using a hierarchical approach to risk assessment. (S7)	<input type="checkbox"/>

<b>Comments: (what was observed)</b>
<b>Questions to help evidence the Pass and Distinction descriptors above</b> Develop some open-ended questions
<b>Write down the question(s) asked:</b>

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 3: Maintain work site health, safety, and environment compliance**

Group 3 - Fail	<input type="checkbox"/>	
Group 3 - Pass	<input type="checkbox"/>	
Group 3 - Distinction	<input type="checkbox"/>	

- K7:** The hazards associated with work on or near electrical power networks
- K10:** Risk assessments and method statements. Emergency procedures. Personal protective equipment (PPE). Manual handling. Fire safety
- K19:** Recycling and waste transfer requirements
- K37:** Hazards and controls for access and egress of operational substation sites: security, pre-entry checks, logging in requirements, automatic or remotely operated equipment, and fire suppression systems
- S6:** Follow substation access and egress procedures
- S7:** Identify hazards and risks and apply control measures
- S8:** Apply health and safety procedures in compliance with regulations, standards, and guidance. For example, demarcate the work area, working at height, confined spaces, COSHH
- S10:** Apply measures to leave power work environments in a safe condition
- S13:** Segregate waste for reuse, recycling, and waste transfer
- B1:** Prioritise health and safety. For example, risk aware, minimise risks, and proactively work towards preventing accidents



Group 4: Identify apparatus

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Identifies apparatus to be worked on using identification methods suitable for the equipment and the situation.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 4: Identify apparatus</b>	
Group 5 - Fail	<input type="checkbox"/>
Group 5 - Pass	<input type="checkbox"/>

**S4:** Identify apparatus to be worked on

Group 5: Tools and equipment

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Selects, checks, and prepares hand tools and power tools required for the task in line with company procedures including selection and care of insulated tools.	<input type="checkbox"/>
Uses hand tools and power tools that are suitable for the application in line with operational requirements.	<input type="checkbox"/>
Stores tools and equipment in line with company procedures.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>		
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions		
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 5: Tools and equipment</b>		
Group 4 - Fail	<input type="checkbox"/>	
Group 4 - Pass	<input type="checkbox"/>	

**K23:** Hand tools and power tools application and operation requirements. Insulated tools - selection and care considerations

**S17:** Select, check, prepare, use, and store hand tools and power tools

Group 6: Complete work records

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Records information for work tasks in line with company documentation requirements.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 6: Complete work records</b>	
Group 6 - Fail	<input type="checkbox"/>
Group 6 - Pass	<input type="checkbox"/>

**K25:** Documentation requirements; importance of accurate records  
**S23:** Record information



## Distribution maintenance

Group 7: Use maintenance specifications (distribution)

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Reads, interprets, and follows maintenance specifications to support task completion.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 7: Use maintenance specifications (distribution)</b>	
Group 7 - Fail	<input type="checkbox"/>
Group 7 - Pass	<input type="checkbox"/>

**S27:** Read, interpret, and follow maintenance specifications

Group 8: Electrical testing

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Conducts diagnostic testing to identify asset condition and identifies action required.	<input type="checkbox"/>
Conducts electrical testing using correct methods for continuity, joint or contact resistance, insulation, and supply checks on a low voltage single and three phase supply to identify: correct polarity, voltage, earth fault loop impedance and phase rotation in line with task requirements and company procedures.	<input type="checkbox"/>

<b>To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the following:descriptors</b>	<b>D</b>
Evaluates the diagnostic results to determine potential underlying cause of issues and rectification.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>
<b>Questions to help evidence the Pass and Distinction descriptors above</b> Develop some open-ended questions
<b>Write down the question(s) asked:</b>
<b>Summary of response to question(s):</b>
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 8: Electrical testing</b>

Group 8 - Fail	<input type="checkbox"/>	
Group 8 - Pass	<input type="checkbox"/>	
Group 8 - Distinction	<input type="checkbox"/>	

**K43:** Electrical testing requirements and methods: continuity and polarity of circuits, insulation resistance, Voltage, Earth Fault Loop Impedance (EFLI), phase rotation, and joint or contact resistance

**S28:** Conduct diagnostic testing to identify asset condition; identify action

**S29:** Conduct continuity testing using a continuity test instrument or multimeter

**S30:** Conduct joint or contact resistance testing using a contact resistance tester (ductor)

**S31:** Conduct insulation testing using an insulation test instrument

**S46:** Conduct supply checks of a low voltage single and three phase supply to identify: correct polarity, voltage, earth fault loop impedance and phase rotation

**S47:** Use electrical test instruments to diagnose a fault condition on low voltage distribution or control equipment for example open circuit, blown fuse, short circuit or out phase condition

Group 9: Circuit breaker maintenance

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Sets up oil pumping equipment, removes and replaces insulating oil, and cleans equipment following removal of insulating oil in line with task requirements and company procedures.	<input type="checkbox"/>
Checks circuit breaker contact condition, removing and replacing or dressing in line with task requirements and company procedures.	<input type="checkbox"/>
Cleans and lubricates operating mechanisms using approved lubricants in line with task requirements and company procedures.	<input type="checkbox"/>
Adjusts, remove, and replaces components in line with task requirements and company procedures. (K47, S32, S33, S34, S35, S36, S38, S39)	<input type="checkbox"/>
Takes oil samples using insulating oil sampling methods including sample taps and tubes in line with task requirements and company procedures. (K44, S37)	<input type="checkbox"/>

**Comments: (what was observed)**

**Questions to help evidence the Pass descriptors above**

Develop some open-ended questions

**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 9: Circuit breaker maintenance**

Group 9 - Fail	<input type="checkbox"/>	
Group 9 - Pass	<input type="checkbox"/>	

**K44:** Insulating oil sampling methods: sample taps and sample tubes and their requirements

**K47:** Post fault and routine maintenance of oil filled circuit breakers requirements

**S32:** Conduct circuit breaker timing tests

**S33:** Set up oil pumping equipment

**S34:** Remove and replace insulating oil from substation plant avoiding contamination

**S35:** Clean oil filled equipment following removal of insulating oil

**S36:** Check circuit breaker contact condition; remove and replace or dress

**S37:** Take oil samples from equipment

**S38:** Clean and lubricate operating mechanisms using approved lubricants

**S39:** Adjust, remove, and replace components for example, gaskets

Group 10: Battery maintenance

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Conducts functional tests of equipment to confirm operating to expected parameters and inspects substation site, buildings and equipment including steelwork and neutral earthing conductors and connections in line with task requirements and company procedures and identifies any defects in condition.	<input type="checkbox"/>

**Comments: (what was observed)**

**Questions to help evidence the Pass descriptors above**  
Develop some open-ended questions

**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 10: Battery maintenance**

Group 10 - Fail	<input type="checkbox"/>	
Group 10 - Pass	<input type="checkbox"/>	

**K49:** Substation battery maintenance and testing requirements: wet cell and dry (sealed) battery types

**S44:** Check battery connections for any damage, clean cells, check monitoring alarms, check function of charging equipment

**S45:** Test substation batteries using voltage and analytical testing instruments

Group 11: Inspection and monitoring of substation equipment

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Conducts functional tests of equipment to confirm operating to expected parameters and inspects substation site, buildings and equipment including steelwork and neutral earthing conductors and connections in line with task requirements and company procedures and identifies any defects in condition.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> <i>Develop some open-ended questions</i>	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 11: Inspection and monitoring of substation equipment</b>	
Group 11 - Fail	<input type="checkbox"/>
Group 11 - Pass	<input type="checkbox"/>

**K45:** Requirements for inspection, monitoring and condition assessment of equipment in distribution secondary or primary substation types  
**S40:** Conduct functional tests of equipment - post maintenance or routine  
**S41:** Inspect substation site, buildings and equipment including steelwork and neutral earthing conductors and connections and identify defects

Group 12: Switching operations

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Conducts switching operations including accurately interpreting the network schematic diagrams and geographic records to identify the running arrangements, preparing low voltage or high voltage switching operation schedules, and operating network switching equipment in line with task requirements and company procedures.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass and Distinction descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 12: Switching operations</b>	
Group 11 - Fail	<input type="checkbox"/>
Group 11 - Pass	<input type="checkbox"/>

- K56:** Low voltage and high voltage operational switching and testing requirements
- S48:** Interpret network schematic diagrams and geographic records to identify running arrangements prior to operation
- S49:** Prepare low voltage or high voltage switching operation schedules
- S50:** Operate network switching equipment such as switches, circuit breakers, links or fuses on low voltage or high voltage distribution networks



## Transmission maintenance

### Group 7: Use maintenance specifications

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Reads, interprets, and follows maintenance specifications to support task completion.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 7: Use maintenance specifications</b>	
Group 7 - Fail	<input type="checkbox"/>
Group 7 - Pass	<input type="checkbox"/>
Group 7 - Distinction	<input type="checkbox"/>

**S51:** Read, interpret, and follow maintenance specifications

Group 8: Use elevated work platforms

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors		P
Uses mobile elevated work platforms safely in line with company procedures		<input type="checkbox"/>
<b>Comments: (what was observed)</b>		
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions		
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 8: Use elevated work platforms</b>		
Group 8 - Fail	<input type="checkbox"/>	
Group 8 - Pass	<input type="checkbox"/>	

**S53:** Use mobile elevated work platforms.

Group 9: Electrical testing

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Interprets network schematic diagrams accurately prior to carrying out testing activities.	<input type="checkbox"/>
Uses diagnostic equipment to identify asset condition and identifies action required.	<input type="checkbox"/>
Conducts electrical testing using correct methods for continuity, resistance, and circuit breaker timing in line with task requirements and company procedures. (K57, S52, S54, S55, S56, S57)	<input type="checkbox"/>
Restores power in line with company procedures. (K66, S69)	<input type="checkbox"/>

To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the following:descriptors	D
Evaluates the diagnostic results to determine potential underlying cause of issues and rectification.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>
<b>Questions to help evidence the Pass and Distinction descriptors above</b> Develop some open-ended questions
<b>Write down the question(s) asked:</b>
<b>Summary of response to question(s):</b>

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 9: Electrical testing**

Group 9 - Fail	<input type="checkbox"/>	
Group 9 - Pass	<input type="checkbox"/>	
Group 9 - Distinction	<input type="checkbox"/>	

**K57:** Electrical testing requirements and methods: continuity, voltage, and joint or contact resistance

**K66:** Restoring power procedures

**S52:** Interpret network schematic diagrams prior to carrying out testing activities

**S54:** Use diagnostic equipment to identify asset condition; identify action

**S55:** Conduct testing using a continuity test instrument or multimeter

**S56:** Conduct resistance testing using a contact resistance tester (ductor)

**S57:** Conduct circuit breaker timing tests

**S69:** Restore power.

Group 10: Circuit breaker maintenance

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors		P
Conducts circuit breaker maintenance in line with task requirements and company procedures including taking insulation medium samples from equipment, cleaning and lubricating operating mechanisms using approved lubricants, adjusting or replacing components using mechanical fixings, conducting functional tests of equipment to confirm it is operating to expected parameters, and conducting visual inspections of transmission steelwork earthing connections, identifying any issues.		<input type="checkbox"/>
<b>Comments: (what was observed)</b>		
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions		
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 10: Circuit breaker maintenance</b>		
Group 10 - Fail	<input type="checkbox"/>	
Group 10 - Pass	<input type="checkbox"/>	

**K59:** Use and operation of mechanical fixings

**K62:** Maintenance processes for circuit breakers

**S62:** Take insulation medium samples from equipment for example, oil, SF6.

**S63:** Clean and lubricate operating mechanisms using approved lubricants

**S64:** Adjust or replace components

**S65:** Conduct functional tests of equipment, post maintenance or routine, to confirm operating to expected parameters

**S66:** Conduct a visual inspection of transmission steelwork earthing connections; identify issues

## Construction

Group 7: Use engineering representations, drawings, and graphical information

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Reads, interprets, and follows engineering representations, drawings, and graphical information to support task completion.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 7: Use engineering representations, drawings, and graphical information</b>	
Group 7 - Fail	<input type="checkbox"/>
Group 7 - Pass	<input type="checkbox"/>

**K67:** Engineering representations, drawings, and graphical information: application and importance

**S73:** Read, interpret, and follow representations, drawings, and graphical information to complete tasks. For example, multicore diagrams, schematics, and core sheets:

Group 8: Follow construction safety requirements

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Proves plant, equipment, cabling, and system is safe to work on and checks earthing is in place in line with task requirements and company procedures. (S74, S75)	<input type="checkbox"/>
Follows lifting plan in line with lifting operations - rigging and slinging - requirements. (K75, S76)	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 8: Follow construction safety requirements</b>	
Group 8 - Fail	<input type="checkbox"/>
Group 8 - Pass	<input type="checkbox"/>

**K75:** Lifting operations – rigging and slinging

**S74:** Prove plant, equipment, cabling, and system is safe to work on. For example, prove dead, isolate

**S75:** Check earthing is in place. For example, additional earths, equipment earths, and drain earths

**S76:** Follow lifting plan



Group 9: Install new substation equipment

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors		P
Locates and fixes high voltage switchgear using fixing systems including unistrut, rawl bolts, chemical fixing anchors and proof loading, shims, and grouting for base plates in line with task requirements and company procedures		<input type="checkbox"/>
<b>Comments: (what was observed)</b>		
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions		
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 9: Install new substation equipment</b>		
Group 9 - Fail	<input type="checkbox"/>	
Group 9 - Pass	<input type="checkbox"/>	

**K73:** Fixing systems: unistrut, rawl bolts, chemical fixing anchors and proof loading, shims, and grouting for base plates  
**S79:** Locate and fix high voltage switchgear

Group 10: Install earthing associated with substations

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Installs earthing including laying earth tape, selecting and applying mechanical connections, brazing and welding to fix it within excavations and to plant and equipment above and below ground. In doing so, uses materials and equipment suitable for the task and stores, transports and uses commercial gas in line with company procedures.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 10: Install earthing associated with substations</b>	
Group 10 - Fail	<input type="checkbox"/>
Group 10 - Pass	<input type="checkbox"/>

**K68:** Commercial gas: storage, transportation, and safe use

**K72:** System earthing requirements: selection of materials and equipment for above and below ground earthing systems, installation, mechanical connections, welding, and brazing

**S81:** Apply mechanical connections, brazing, and welding techniques

**S82:** Lay and fix earth tape within excavation and to plant and equipment

Group 11: Install and terminate multi-core cables and containment systems

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Selects, positions, and connects multi-core wiring including glanding, looming, crimping, and ferruling in line with task requirements and company procedures	<input type="checkbox"/>

<b>Comments: (what was observed)</b>	
<b>Questions to help evidence the Pass descriptors above</b> Develop some open-ended questions	
<b>Write down the question(s) asked:</b>	
<b>Summary of response to question(s):</b>	
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 11: Install and terminate multi-core cables and containment systems</b>	
Group 11 - Fail	<input type="checkbox"/>
Group 11 - Pass	<input type="checkbox"/>

**K70:** Multi-core wiring requirements: installation, termination (glanding , looming, crimping, and ferruling), labelling and identification system  
**S85:** Select, position, and connect multi-core wiring including glanding, looming, crimping, and ferruling. For example, panel wiring within a protection panel and switchgear. Apply labelling and identification system

Group 12: Conduct testing on installed equipment

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Selects and use test instruments to conduct a minimum of 3 different testing procedures and describes how they would conduct others in line with task requirements and company procedures, covering voltage, polarity, insulation resistance, three-phase testing, phase rotation, earth loop impedence, continuity, and joint resistance. (K76, S86)	<input type="checkbox"/>
Conducts mechanical testing including proof loading and torque tests in line with task requirements and company procedures. (K82, S87)	<input type="checkbox"/>
Conducts alignment checks in line with task requirements and manufacturer's instructions. (S88)	<input type="checkbox"/>
Takes oil samples for testing in line with task requirements and company procedures. (K83, S89)	<input type="checkbox"/>
Interprets test results identifying action as required. (S91)	<input type="checkbox"/>

<b>To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the following:descriptors</b>	<b>D</b>
Evaluates the importance of applying electrical and mechanical testing in terms of preventing operational issues.	<input type="checkbox"/>

<b>Comments: (what was observed)</b>
<b>Questions to help evidence the Pass and Distinction descriptors above</b> Develop some open-ended questions
<b>Write down the question(s) asked:</b>
<b>Summary of response to question(s):</b>

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 12: Conduct testing on installed equipment**

Group 10 - Fail	<input type="checkbox"/>	
Group 10 - Pass	<input type="checkbox"/>	

**K76:** Testing procedures: voltage, polarity, insulation resistance, three-phase testing, phase rotation, earth loop impedance, continuity, and joint resistance

**K82:** Mechanical testing requirements

**K83:** Oil sampling methods and requirements

**S86:** Use test instruments. For example, volt meters, multi-function tester, and resistance tester

**S87:** Conduct mechanical testing. For example, torque and proof loading.

**S88:** Conduct alignment checks

**S89:** Take oil samples for testing

**S91:** Interpret test results and action as required



## Appendix H: Example: Trade Test Technical Interview Assessor Recording Form

# Power Industry Substation Fitter

## Trade Test Technical Interview – Example of Assessor Recording Form

### Instructions for the employer assessor

#### Delivery

- The interview will last at least 75 minutes
- This is an Employer Assessor led formal interview and not a professional discussion. You must be in full control. If the apprentice veers off track, they need to be reined back in
- You must ask a minimum of ten open questions
- Tailor questions to suit individual circumstances
- The purpose of the questions is to cover the following topics:

#### **Core**

- role and responsibilities
- electrical danger and control
- working at height
- asset security
- insulating mediums
- methods of cooling transformers
- handling and transportation of insulation oil
- determining insulating oil integrity

#### **Distribution maintenance**

- functional tests
- jointing earthing conductors
- ground mounted distribution oil filled switchgear maintenance
- transformers maintenance requirements
- air break disconnectors maintenance requirements

#### **Transmission maintenance**

- insulation testing
- insulation medium maintenance
- battery maintenance
- transmission equipment maintenance
- condition monitoring

### Construction

- construction equipment and cabling installation
  - AC/DC (alternating current and direct current) supply power cable and power wiring installation
  - diagnostic fault-finding techniques
  - plant and equipment locking devices and interlocking systems requirements
  - producing wiring core sheets from wiring diagrams
  - replacing components
  - removing cabling and equipment
- 
- Answers to questions, must be documented.
  - If the interview is conducted by video conferencing, timeline each question to the recording. Only log the time for the start of each question asked
  - Additional follow-up questions are allowed to seek clarification and to make a judgement against grading descriptor
  - Supply brief written notes where each criterion has been met
  - Complete the summary report page
  - Record a preliminary grade
  - Complete the justification for the preliminary grade
  - Both the recording and the written notes will be subject to IQA by EUIAS

The apprentice may choose to end the assessment method early

- You must ensure the apprentice is fully aware of all assessment requirements
- You cannot suggest or choose to end the assessment methods early, unless in an emergency
- You must ensure the apprentice understands the implications of ending an assessment early if they choose to do so

You may suggest the assessment continues

**At the end of the interview** -Thank the apprentice for their time and wish them good luck



Name of Apprentice	
<input type="checkbox"/> Apprentice ID checked	
Option	
Are Reasonable Adjustments required? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Please give details	
Location of Technical Interview	
Full Name of Employer Assessor	
Date of Technical Interview	
Start Time	
End Time	
Apprentice asked to end the assessment early (check the box)	<input type="checkbox"/>
Employer Assessor suggested assessment continues (check the box)	<input type="checkbox"/>

Fail - does not meet pass criteria

To achieve a PASS the apprentice must demonstrate ALL the PASS descriptors for the core and their option

Preliminary Grade awarded (Please tick the relevant box)	Pass <input type="checkbox"/>	Fail
Employer Assessor Justification for Preliminary Grade awarded:		

Trade Test Technical Interview Summary	Pass
<b>Core</b>	
<b>Group 1: Role and responsibilities</b> K4 K5 S22 B4	<input type="checkbox"/>
<b>Group 2: Electrical danger - control and first aid</b> K8 K11 K42 S9	<input type="checkbox"/>
<b>Group 3: Working at height</b> K12 K13 S15 S16	<input type="checkbox"/>
<b>Group 4: Asset security</b> K16 S11	<input type="checkbox"/>
<b>Group 5: Insulating mediums</b> K38	<input type="checkbox"/>
<b>Group 6: Methods of cooling transformers</b> K39	<input type="checkbox"/>
<b>Group 7: Handling and transportation of insulation oil</b> K40	<input type="checkbox"/>
<b>Group 8: Determining insulating oil integrity</b> K41	<input type="checkbox"/>
<b>Distribution maintenance</b>	
<b>Group 9: Functional tests</b> K46	<input type="checkbox"/>
<b>Group 10: Jointing earthing conductors</b> K55 S42 S43	<input type="checkbox"/>
<b>Group 11: Ground mounted distribution oil filled switchgear maintenance</b> K48	<input type="checkbox"/>
<b>Group 12: Transformers maintenance requirements</b> K50	<input type="checkbox"/>
<b>Group 13: Air break disconnectors maintenance requirements</b> K51	<input type="checkbox"/>
<b>Transmission maintenance</b>	

<b>Group 9: Insultation testing</b> K58 S58	<input type="checkbox"/>
<b>Group 10: Insulation medium maintenance</b> S59 S60 S61	<input type="checkbox"/>
<b>Group 11: Battery maintenance</b> K65 S67 S68	<input type="checkbox"/>
<b>Group 12: Transmission equipment maintenance</b> K61 K63 K64 S70 S71 S72	<input type="checkbox"/>
<b>Group 13: Condition monitoring processes</b> K60	<input type="checkbox"/>
<b>Construction</b>	
<b>Group 9: Construction equipment and cabling installation</b> K69 K74 K81 S77 S78 S84	<input type="checkbox"/>
<b>Group 10: AC/DC (alternating current and direct current) supply power cable and power wiring installation</b> K71 S80	<input type="checkbox"/>
<b>Group 11: Diagnostic fault-finding techniques</b> K77 S90	<input type="checkbox"/>
<b>Group 12: Plant and equipment locking devices and interlocking systems requirements</b> K78	<input type="checkbox"/>
<b>Group 13: Producing wiring core sheets from wiring diagrams</b> S83	<input type="checkbox"/>
<b>Group 14: Replacing components</b> S92	<input type="checkbox"/>
<b>Group 15: Removing cabling and equipment</b> S93	<input type="checkbox"/>

## Introduction

At the start of the trade test technical interview the Employer Assessor will:

- Introduce themselves
- State their role
- State the date of the interview
- Request and confirm ID from the apprentice
- Provide apprentice with information on the format of the technical interview, including the timescales they will be working to.

The apprentice will:

- Confirm their full name
- Confirm their date of birth
- Confirm they are prepared for the interview; and confirm they can continue with the interview

## Important points to inform the apprentice

- Please do not judge anything by the notes being taken, nor infer anything positive or negative from how long the interview lasts.
- We are not allowed to give you feedback at any point. So unfortunately, we will not be able to give you any indication of your grade and whether you have passed or failed at the end.
- Please ensure that your mobile off or somewhere where you will not be interrupted during the interview.
- Sign placed on the door of the interview room. Interview in progress 'Do not disturb'.
- This interview will be fully recorded for the purpose of audit and quality assurance.

## Core

### Group 1: Role and responsibilities

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors		P
Outlines their role as a substation fitter including their limits of responsibility and how they escalate issues. (K4, S22, B4)		<input type="checkbox"/>
Describes how they respond and adapt to work demands in line with organisational requirements. (K4, S22, B4)		<input type="checkbox"/>
Explains the responsibilities of persons as defined in the industry standard safety rules: supervising a working party, competent persons, and authorisation roles and responsibilities in relation to working under safety documentation. (K5)		<input type="checkbox"/>
<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 1: Role and responsibilities</b>		
Group 1 - Fail	<input type="checkbox"/>	
Group 1 - Pass	<input type="checkbox"/>	

**K4:** Substation fitter roles and responsibilities. Limitations of role and escalation procedures

**K5:** Responsibilities of persons as defined in industry standard safety rules: supervising a working party, competent persons. Authorisation roles and responsibilities. Safety documentation

**S22:** Escalate issues outside limits of responsibility

**B4:** Respond and adapt to work demands. For example, adapt working methods to reflect changes in working environment, take initiative -making on the spot decisions, re-prioritise workloads to react to emergency response and to fault scenarios

Group 2: Electrical danger - control and first aid

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Explains the dangers of electricity and how an electric shock can be received including direct contact, induced (impressed) voltage, and arcing. Outlines electric shock emergency procedures in line with company procedures. (K8)	<input type="checkbox"/>
Explains safe systems of work on high voltage and low voltage equipment to ensure safety from the inherent dangers of the system. (K42)	<input type="checkbox"/>
Describes how they would respond in the event of a first aid emergency, with reference to their emergency first aid training and responsibilities and measures they would take to avoid electrical risk in line with company procedures. (K11, S9)	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 2: Electrical danger - control and first aid</b>		
Group 2 - Fail	<input type="checkbox"/>	
Group 2 - Pass	<input type="checkbox"/>	

**K8:** The dangers of electricity and how an electric shock can be received: direct contact, induced (impressed) voltage, and arcing. Electric shock emergency procedures

**K11:** Emergency first aid

**K42:** Safe systems of work on high voltage and low voltage equipment to ensure safety from the inherent dangers of the system

**S9:** Respond in the event of an emergency first aid situation including situations where there is electrical risk

Group 3: Working at height

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they use working at height access equipment with reference to hierarchy of methods for working at height and inspection, operation, and maintenance requirements for mobile working platforms, scaffolding and ladders in line with company procedures.	<input type="checkbox"/>
Describes how they use personal protective equipment: harnesses, fall restraint and arrest equipment suitable for the context with reference to user inspection, operation, and maintenance requirements.	<input type="checkbox"/>
Outlines rescue from height equipment and methods in line with company procedures.	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 3: Working at height</b>		
Group 3 - Fail	<input type="checkbox"/>	
Group 3 - Pass	<input type="checkbox"/>	

**K12:** Working at height awareness and safe use of methods of access and egress. Hierarchy of methods. Mobile working platforms, scaffolding, ladders – inspection, operation, and maintenance requirements

**K13:** Working at height personal protective equipment: harnesses, fall restraint and arrest equipment - user inspection, operation, and maintenance requirements. Rescue from height equipment and methods

**S15:** Use working at height access equipment for example, scaffold towers and ladders

**S16:** Select, inspect, and use working at height personal protective equipment

Group 4: Asset security

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they apply asset security measures in line with company procedures.	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 4: Asset security**

Group 4 - Fail	<input type="checkbox"/>	
Group 4 - Pass	<input type="checkbox"/>	

**K16:** Asset security requirements

**S11:** Apply security measures for example, set alarm system, remove climbing aides





Group 5: Insulating mediums

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Explains the advantages and disadvantages of different types of insulating mediums used in high voltage equipment including insulating oil, SF6 gas, vacuum, air, and SF6 alternatives	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail or Pass grade awarded for Group 5: Insulating mediums**

Group 5 - Fail	<input type="checkbox"/>	
Group 5 - Pass	<input type="checkbox"/>	

**K38:** Types of insulating mediums used in high voltage equipment and their advantages or disadvantages: insulating oil, SF6 gas, vacuum, air, and SF6 alternatives

Group 6: Methods of cooling transformers

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Explains the advantages and limitations of different methods of cooling transformers including natural, pump forced, and fan forced. Along with the methods of control and associated protection if overheating occurs	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 6: Methods of cooling transformers**

Group 6 - Fail	<input type="checkbox"/>	
Group 6 - Pass	<input type="checkbox"/>	

**K39:** Methods of cooling transformers and their advantages and limitations: natural, pump forced, and fan forced. The methods of control and associated protection if overheating occurs

Group 7: Handling and transportation of insulation oil

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Explains considerations for the handling or transportation of insulating oil (bulk and drums) including reducing risk of spillage, bunding requirements, hygiene, barrier creams, specialist PPE, pumps, storage, labelling containers, manual handling, and disposal in line with company procedures	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 7: Handling and transportation of insulation oil</b>		
Group 7 - Fail	<input type="checkbox"/>	
Group 7 - Pass	<input type="checkbox"/>	

**K40:** Considerations for the handling or transportation of insulating oil (bulk and drums): reducing risk of spillage, bunding requirements, hygiene, barrier creams, specialist PPE, pumps, storage, labelling containers, manual handling, and disposal



Group 8: Determining insulating oil integrity

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Explains methods of determining insulating oil electrical integrity or presence of contaminants with reference to dielectric strength, moisture, acidity, polychlorinated biphenyl (PCB), and carbonisation	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 8: Determining insulating oil integrity**

Group 8 - Fail	<input type="checkbox"/>	
Group 8 - Pass	<input type="checkbox"/>	

**K41:** Methods of determining insulating oil electrical integrity or presence of contaminants: dielectric strength, moisture, acidity, polychlorinated biphenyl (PCB), and carbonisation



## Distribution maintenance

### Group 9: Functional tests

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors		P
Explains the functional checks and routine basic maintenance of substation equipment including breather gels, Automatic Voltage Control systems, cooling systems, bund pumps, battery monitoring alarms, oil pressure alarms, and Transient Earth Voltage (TEV) testing in line with company procedures		<input type="checkbox"/>
<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 9: Functional tests</b>		
Group 9 - Fail	<input type="checkbox"/>	
Group 9 - Pass	<input type="checkbox"/>	

**K46:** Functional checks and routine basic maintenance of substation equipment requirements: breather gels, Automatic Voltage Control systems, cooling systems, bund pumps, battery monitoring alarms, oil pressure alarms, Transient Earth Voltage (TEV) testing

Group 10: Jointing earthing conductors

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Describes how they joint earthing conductors using mechanical compression joints and conduct electrical testing of earth electrodes using a digital earth resistance tester in line with company procedures	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 10: Jointing earthing conductors**

Group 10 - Fail	<input type="checkbox"/>	
Group 10 - Pass	<input type="checkbox"/>	

**K55:** Requirements for jointing earthing conductors using mechanical compression joints

**S42:** Conduct electrical testing of earth electrodes using a digital earth resistance tester

**S43:** Joint earthing conductors using mechanical compression joints

Group 11: Ground mounted distribution oil filled switchgear maintenance

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Explains routine ground mounted distribution oil filled switchgear maintenance requirements in line with company procedures including removal and replacement of oil, cleaning of internal tanks and components, inspection and replacement of gaskets, lubrication of external mechanisms	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 11: Ground mounted distribution oil filled switchgear maintenance</b>		
Group 11 - Fail	<input type="checkbox"/>	
Group 11 - Pass	<input type="checkbox"/>	

**K48:** Routine ground mounted distribution oil filled switchgear maintenance requirements: removal and replacement of oil, cleaning of internal tanks and components, inspection and replacement of gaskets, lubrication of external mechanisms

Group 12: Transformers maintenance requirements

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Explains distribution primary transformer and ancillary equipment maintenance requirements in line with company requirements	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 12: Transformers maintenance requirements**

Group 12 - Fail	<input type="checkbox"/>	
Group 12 - Pass	<input type="checkbox"/>	

**K50:** Distribution primary transformer and ancillary equipment maintenance requirements





Group 13: Air break disconnectors maintenance requirements

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Explains air break switch disconnectors maintenance requirements in line with company procedures for motorised load breaking and manual non-load breaking equipment	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 13: Air break disconnectors maintenance requirements**

Group 13 - Fail	<input type="checkbox"/>	
Group 13 - Pass	<input type="checkbox"/>	

**K51:** Air break switch disconnectors maintenance requirements for motorised load breaking and manual non-load breaking equipment



## Transmission maintenance

### Group 9: Insulation testing

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they conduct insulation testing using an insulation test instrument in line with task requirements and company procedures	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 9: Insulation testing**

Group 9 - Fail	<input type="checkbox"/>	
Group 9 - Pass	<input type="checkbox"/>	

**K58:** Insulation resistance testing methods and requirements

**S58:** Conduct insulation testing using an insulation test instrument

Group 10: Insulation medium maintenance

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they remove and replace insulating medium and clean equipment following its removal in line with task requirements and company procedures (S59, S60)	<input type="checkbox"/>
Describes how they check circuit breaker contact condition and remove and replace or dress in line with task requirements and company procedures (S61)	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 10: Insulation medium maintenance</b>		
Group 10 - Fail	<input type="checkbox"/>	
Group 10 - Pass	<input type="checkbox"/>	

**S59:** Remove and replace insulating medium for example, oil, SF6 or air from transmission plant avoiding contamination

**S60:** Clean equipment following removal of insulating medium

**S61:** Check circuit breaker contact condition; remove and replace or dress

Group 11: Battery maintenance

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors		P
Describes how they conduct wet cell and sealed battery maintenance including checking battery connections for any damage, cleaning cells, checking monitoring alarms, and checking function of charging equipment and test substation batteries using voltage and analytical testing instruments in line with task requirements and company procedures		<input type="checkbox"/>
<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 11: Battery maintenance</b>		
Group 11 - Fail	<input type="checkbox"/>	
Group 11 - Pass	<input type="checkbox"/>	

**K65:** Substation battery maintenance and testing requirements: wet cell and sealed

**S67:** Check battery connections for any damage, clean cells, check monitoring alarms, check function of charging equipment

**S68:** Test substation batteries using voltage and analytical testing instruments

Group 12: Transmission equipment maintenance

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they conduct transformer maintenance including tap changers, Buchholz relay, WTI, qualitrol, breathers, surge arrestors, coordinating gaps, arcing horns, insulator checks and recalibrating (LNER) in line with task requirements and company procedure (K61, S70)	<input type="checkbox"/>
Describes how they conduct air system maintenance including making new pipework HP fittings, air leak detection and gas leak detection in line with task requirements and company procedures (K63, S71)	<input type="checkbox"/>
Describes how they conduct ancillary equipment maintenance including isolator dynamic torque testing in line with task requirements and company procedures (K64, S72)	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 12: Transmission equipment maintenance</b>		
Group 12 - Fail	<input type="checkbox"/>	
Group 12 - Pass	<input type="checkbox"/>	

**K61:** Maintenance processes for transformers: tap changers, Buchholz relay, winding temperature indicator (WTI), qualitrol, breathers, surge arrestors, coordinating gaps, arcing horns, insulator checks and recalibrating (LNER)



**K63:** Maintenance processes for air systems: making new pipework HP fittings, air leak detection, and gas leak detection

**K64:** Maintenance processes for ancillary equipment: Isolator dynamic torque testing

**S70:** Conduct transformer maintenance including tap changers, Buchholz relay, WTI, qualitrol, breathers, surge arrestors, coordinating gaps, arcing horns, insulator checks and recalibrating (LNER)

**S71:** Conduct air system maintenance including making new pipework HP fittings, air leak detection and gas leak detection

**S72:** Conduct ancillary equipment maintenance

Group 13: Condition monitoring processes

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Explains the condition monitoring processes and equipment used within their area of operation	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 13: Condition monitoring processes**

Group 13 - Fail	<input type="checkbox"/>	
Group 13 - Pass	<input type="checkbox"/>	

**K60:** Condition monitoring processes and use of equipment relating to measuring asset condition



## Construction

### Group 9: Construction equipment and cabling installation

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they install batteries in line with company procedures (K81, S77)	<input type="checkbox"/>
Describes how they position transformers in line with company procedures (S78)	<input type="checkbox"/>
Describes how they select, position, and install a given containment management system in line with company procedures (K69, S83)	<input type="checkbox"/>
Explains the internal and external positioning requirements when installing plant, metal structures, and apparatus (K74)	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 9: Construction equipment and cabling installation</b>		
Group 9 - Fail	<input type="checkbox"/>	
Group 9 - Pass	<input type="checkbox"/>	

**K69:** Types of cable containment management systems and installation requirements

**K74:** Installation of plant, metal structures, and apparatus - internal and external - positioning requirements

**K81:** Battery installation and checking requirements. Principles of stored energy and incident level

**S77:** Install batteries. Check function and action as required

**S78:** Position transformers

**S84:** Select, position, and install containment management system. For example, unistrut, ladder tray, and trunking





Group 10: AC/DC (alternating current and direct current) supply power cable and power wiring installation

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they select, position, and install AC/DC supply power cable and power wiring in line with company requirements	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 10: AC/DC (alternating current and direct current) supply power cable and power wiring installation**

Group 10 - Fail	<input type="checkbox"/>	
Group 10 - Pass	<input type="checkbox"/>	

**K71:** AC/DC (alternating current and direct current) supply power cable and power wiring installation requirements

**S80:** Select, position, and install AC/DC supply power cable and power wiring



Group 11: Diagnostic fault-finding techniques

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they use diagnostic fault-finding techniques to investigate issues with equipment	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 11: Diagnostic fault-finding techniques**

Group 11 - Fail	<input type="checkbox"/>	
Group 11 - Pass	<input type="checkbox"/>	

**K77:** Diagnostic fault-finding techniques  
**S90:** Apply diagnostic fault-finding techniques

Group 12: Plant and equipment locking devices and interlocking systems requirements

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>	<b>P</b>
Explains plant and equipment locking devices and interlocking systems requirements in their company	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 12: Plant and equipment locking devices and interlocking systems requirements**

Group 12 - Fail	<input type="checkbox"/>	
Group 12 - Pass	<input type="checkbox"/>	

**K78: Plant and equipment locking devices and interlocking systems requirements**



Group 13: Producing wiring core sheets from wiring diagrams

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they produce wiring core sheets from wiring diagrams in line with company procedures	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 13: Producing wiring core sheets from wiring diagrams**

Group 13 - Fail	<input type="checkbox"/>	
Group 13 - Pass	<input type="checkbox"/>	

**S83:** Produce wiring core sheets from wiring diagrams



Group 14: Replacing components

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they replace components within equipment in line with company procedures	<input type="checkbox"/>

<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>
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**Write down the question(s) asked:**

**Summary of response to question(s):**

**Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 14: Replacing components**

Group 14 - Fail	<input type="checkbox"/>	
Group 14 - Pass	<input type="checkbox"/>	

**S92: Replace components within equipment**

Group 15: Removing cabling and equipment

<b>To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors</b>		<b>P</b>
Describes how they remove cabling and equipment in line with company procedures		<input type="checkbox"/>
<b>Timeline reference:</b>	<i>Record time if interview conducted by video conferencing</i>	
<b>Write down the question(s) asked:</b>		
<b>Summary of response to question(s):</b>		
<b>Provide comments explaining the reasons for awarding a Fail, Pass or Distinction grade awarded for Group 15: Removing cabling and equipment</b>		
Group 15 - Fail	<input type="checkbox"/>	
Group 15 - Pass	<input type="checkbox"/>	

**S93: Remove cabling and equipment**



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