ENERGY & ENVIRONMENT AWARDS

Skills for a greener world

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

Supporting Documents

QAN 610/6033/1
ST1331 V1.1 V1.2

Supporting Documents for

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

QAN 610/6033/1

Updates to the supporting documents

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

Version	Date first published	Section updated	Page(s)
v2.0	August 2025	Rebranded	All
v1.2	November 2024	Standard updated (V1.2) to include statement '*The apprentice may choose to end the assessment method early.' 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)

Apprentice's name:	Apprentice's job title:	
Apprentice's ULN:		
Name of Employer:	Name of Training provider:	
Employer representatives present:	Training provider representatives present:	
Apprenticeship start date:	Apprenticeship on-programme end date:	
Was the apprentice aged 19 or over at the start of the programme?	Y / N	
Employer Decision for apprentices aged 19 or over only at the start of the programme**:**	We require the apprentice to attempt English and maths before taking the end-point assessment	Y / N
Gateway meeting date:		
Has the apprentice taken any part of the end-point assessment for this apprenticeship standard with any other End Point Assessment Organisation?	Y / N	
If 'Yes' please give details:		

Apprentice's details

Eligibility requirements:

Where applicable, the apprentice must confirm their achievement of the following

Note: For apprentices aged 19+, if maths and/or English have been attempted but not achieved evidence of the attempt should be submitted.

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 Energy & Environment Awards.
3. Energy & Environment Awards 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 Energy & Environment Awards 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 Energy & Environment Awards 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 Energy & Environment Awards Appeals Policy and Complaints Policy.
12. The employer/training provider has given Energy & Environment Awards 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 Energy & Environment Awards, 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:
Energy & Environment Awards use only:		
Energy & Environment Awards 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 Energy & Environment Awards upon request. This forms part of Energy & Environment Awards' 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 *The trade test practical assessment with questions may take place in parts but must be completed over no more than 21 working days.*	
TT total time documented	
Space to • document an apprentice's request to end the assessment early • indicate whether the employer assessor suggested the assessment continues	
Guidance includes identified simulated environment(s)/locations	
Task to be conducted during practical assessment:	
Core	
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	
Distribution Maintenance	
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: • different questions and tasks • resit whole TT Practical Assessment in full	

Trade Test Practical Assessment with Questions Mapping Summary

Trade Test Practical Assessment Documentation

Transmission maintenance

The following documentation must be provided to Energy & Environment Awards upon request. This forms part of Energy & Environment Awards' 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 *The trade test practical assessment with questions may take place in parts but must be completed over no more than 21 working days.*	
TT total time documented	
Space to • document an apprentice's request to end the assessment early • indicate whether the employer assessor suggested the assessment continues	
Guidance includes identified simulated environment(s)/locations	
Task to be conducted during practical assessment:	
Core	
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	
Transmission Maintenance	
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: • different questions and tasks • resit whole TT Practical Assessment in full	

Trade Test Practical Assessment with Questions Mapping Summary

Trade Test Practical Assessment Documentation

Construction

The following documentation must be provided to Energy & Environment Awards upon request. This forms part of Energy & Environment Awards' 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 *The trade test practical assessment with questions may take place in parts but must be completed over no more than 21 working days.*	
TT total time documented	
Space to • document an apprentice's request to end the assessment early • indicate whether the employer assessor suggested the assessment continues	
Guidance includes identified simulated environment(s)/locations	
Task to be conducted during practical assessment:	
Core	
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	
Construction	
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: • different questions and tasks • resit whole TT Practical Assessment in full	

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
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.	

Trade Test Theme: Organise and supervise a working party	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

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
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	

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
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	

Trade Test Theme: Identify apparatus	Please provide a document reference of where the apprentice will be demonstrating the KSB
S4: 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
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	

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

Distribution maintenance

Trade Test Theme: Use maintenance specifications	Please provide a document reference of where the apprentice will be demonstrating the KSB
S27: 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
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	

Trade Test Theme: Circuit breaker maintenance	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

Trade Test Theme: Battery maintenance	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

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

Trade Test Theme: Inspection and monitoring of substation equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

Trade Test Theme: Switching operations	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

Trade Test Theme: Switching operations	Please provide a document reference of where the apprentice will be demonstrating the KSB
S50: 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
S51: 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
S53: Use mobile elevated work platforms.	

Trade Test Theme: Electrical testing	Please provide a document reference of where the apprentice will be demonstrating the KSB
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.	

Trade Test Theme: Circuit breaker maintenance	Please provide a document reference of where the apprentice will be demonstrating the KSB
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

Trade Test Theme: Use engineering representations, drawings, and graphical information	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

Trade Test Theme: Follow construction safety requirements	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

Trade Test Theme: Install new substation equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
K73: 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
S79: 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
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	

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
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	

Trade Test Theme: Conduct testing on installed equipment	Please provide a document reference of where the apprentice will be demonstrating the KSB
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	

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:	

Energy & Environment Awards 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	

Energy & Environment Awards 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	
Energy & Environment Awards 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 Energy & Environment Awards upon request. This forms part of Energy & Environment Awards' 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 t*raining materials*	
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 *This will confirm that the TI has lasted at least 60 minutes*	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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	

Trade Test Theme: Working at height	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)	

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

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

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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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
Pass descriptors	
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:	

Energy & Environment Awards 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	
Energy & Environment Awards date of review			

Comments

Appendix E: Practice Multiple-choice Test

Level: 3

Power Industry Substation Fitter

Supporting Document: Practice Paper

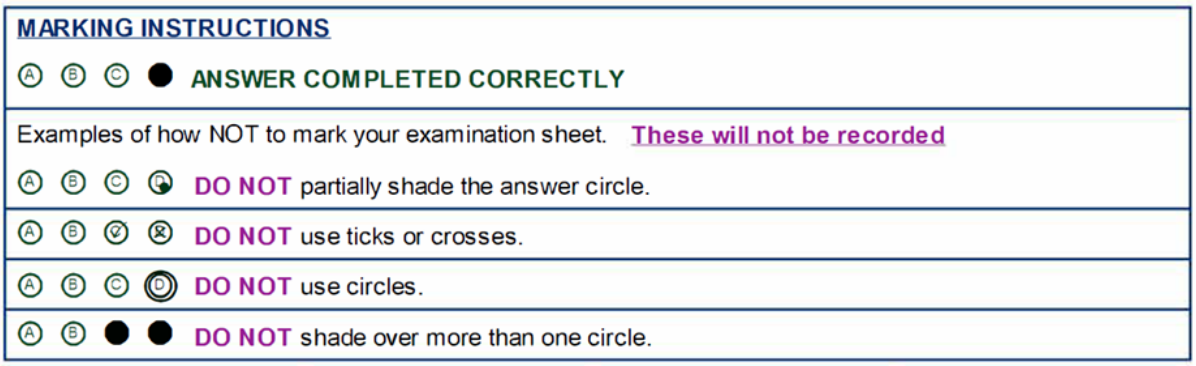
This examination consists of 40 multiple-choice questions.

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:



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

Question 4	
Identify ONE of the basic requirements of The Electricity at Work Regulations 1989.	
Possible answers	
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

Question 5	
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?	
Possible answers	
a)	Electrical and mechanical operation
b)	Daytime and night-time working practices
c)	Indoor and outdoor asset housings
d)	Urban and rural locations

Question 6	
Identify ONE role of customer feedback in power industry operations.	
Possible answers	
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

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

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

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

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

Question 20	
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)	
Possible answers	
a)	200 kW
b)	250 kW
c)	300 kW
d)	350 kW

Question 21	
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?	
Possible answers	
a)	60%
b)	70%
c)	75%
d)	80%

Question 22	
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?	
Possible answers	
a)	50.0 metres
b)	70.7 metres
c)	100.0 metres
d)	141.4 metres

Question 23	
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?	
Possible answers	
a)	64 metres^2
b)	96 metres^2
c)	128 metres^2
d)	144 metres^2

Question 24	
Which ONE of the following best describes mass?	
Possible answers	
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

Question 25	
What is tensile strength?	
Possible answers	
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

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

Question 27	
Which ONE of the following is true for a system in static equilibrium?	
Possible answers	
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

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

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

Question 30	
What is the main advantage of using renewable energy sources for power generation?	
Possible answers	
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

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

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

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

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

Question 38	
At a primary substation in the UK, the voltage is typically stepped down from:	
Possible answers	
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

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

Question 40	
What is the main feature of a Neutral Earth Resistor (NER)?	
Possible answers	
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	☐
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)	☐
Ind. Assessor suggested assessment continues (check the box)	☐
Resit (check the box)	☐
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.

Independent Assessor Full Name and Signature:	**Date:**

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 you can feed back to the apprentice to help the apprentice prepare for the live interview • 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	☐	Justifies the application of teamworking principles to meeting work goals	☐
Describes how they apply written communication techniques to produce or amend documents in their work that are suitable for the context	☐		
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)	☐		
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	☐		

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

Fail ☐	Pass ☐	Distinction ☐
Summary of response to question(s): 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		

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	☐	Justifies the application of sustainability practices in the power industry	☐

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

Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of response to question(s): 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		

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	☐	Justifies the potential impact of the improvement suggestion with consideration to benefits and any potential risks	☐
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	☐		

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

Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of response to question(s): 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		

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	☐	
Explains requirements for safe excavation and signing, lighting, and guarding in line with the New Roads and Street Works Act	☐	
Explains the access to private land, streets, and wayleaves permissions in terms of impact on role	☐	
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)	☐	

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

Fail ☐	**Pass** ☐	
Summary of response to question(s): 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	☐
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)	☐
Ind. Assessor suggested assessment continues (check the box)	☐
Resit (check the box)	☐
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.

Independent Assessor Full Name and Signature:	**Date:**

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 you can feed back to the apprentice to help the apprentice prepare for the live interview
- 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	☐	Justifies the application of teamworking principles to meeting work goals	☐
Describes how they apply written communication techniques to produce or amend documents in their work that are suitable for the context	☐		
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)	☐		
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	☐		

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

Fail ☐	Pass ☐	Distinction ☐
Summary of response to question(s): 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		

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	☐	Justifies the application of sustainability practices in the power industry	☐

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

Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of response to question(s): 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		

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	☐	Justifies the potential impact of the improvement suggestion with consideration to benefits and any potential risks	☐
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	☐		

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

Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of response to question(s): 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		

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	☐	

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

Fail ☐	**Pass** ☐	
Summary of response to question(s): 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

Power Industry Substation Fitter
Construction
Interview

Full Name of Apprentice	
Apprentice ID checked	☐
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)	☐
Ind. Assessor suggested assessment continues (check the box)	☐
Resit (check the box)	☐
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.

Independent Assessor Full Name and Signature:	**Date:**

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 you can feed back to the apprentice to help the apprentice prepare for the live interview • 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	☐	Justifies the application of teamworking principles to meeting work goals	☐
Describes how they apply written communication techniques to produce or amend documents in their work that are suitable for the context	☐		
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)	☐		
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	☐		

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

Fail ☐	Pass ☐	Distinction ☐
Summary of response to question(s): 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		

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	☐	Justifies the application of sustainability practices in the power industry	☐

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

Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of response to question(s): 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		

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	☐	Justifies the potential impact of the improvement suggestion with consideration to benefits and any potential risks	☐
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	☐		

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

Fail ☐	**Pass** ☐	**Distinction** ☐
Summary of response to question(s): 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		

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	☐	
Explains vehicle marshalling requirements and limits of their role in line with industry practice	☐	
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)	☐	

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

Fail ☐	**Pass** ☐	
Summary of response to question(s): 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		

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

Energy & Environment Awards are required to approve employers' trade test practical assessment with questions materials to be used by employer assessors, apprentices and their managers. The following pages include an example trade test practical assessment recording form for assessors. This form can be used by employers without adaptation or as a starting point for creating an employer-specific trade test practical assessment with questions recording form for employer assessors.

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	
☐Apprentice ID checked	
Option	
Are Reasonable Adjustments required? Yes ☐ No ☐	
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)	☐
Employer Assessor suggested assessment continues (check the box)	☐

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 ☐	Pass ☐	Fail ☐
Employer Assessor Justification for Preliminary Grade awarded:			

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

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

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Reviews drawings, instructions, or information to understand the task's requirements. (S1)	☐
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)	☐

To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the following:descriptors	D
Justifies their planning in terms of efficiencies achieved and the balance of safety, environmental impact, quality, and cost in planning decisions.	☐

Comments: (what was observed)
Questions to help evidence the Pass and Distinction 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, Pass or Distinction grade awarded for Group 1: Prepare for substation fitter activities

Group 1 - Fail	☐	

Group 1 - Pass	☐	
Group 1 - Distinction	☐	

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.	☐

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 2: Organise and supervise a working party

Group 2 - Fail	☐	
Group 2 - Pass	☐	

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)	☐
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.	☐
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)	☐
Applies measures to leave power work environments in a safe and secure condition in line with company procedures. (S10)	☐
Segregates resources for reuse, recycling, and waste handling in line with company procedures for recycling and waste transfer (K19, S13)	☐

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)	☐

Comments: (what was observed)
Questions to help evidence the Pass and Distinction 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, Pass or Distinction grade awarded for Group 3: Maintain work site health, safety, and environment compliance

Group 3 - Fail	☐	
Group 3 - Pass	☐	
Group 3 - Distinction	☐	

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.	☐

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 4: Identify apparatus		
Group 5 - Fail	☐	
Group 5 - Pass	☐	

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.	☐
Uses hand tools and power tools that are suitable for the application in line with operational requirements.	☐
Stores tools and equipment in line with company procedures.	☐

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 5: Tools and equipment

Group 4 - Fail	☐	
Group 4 - Pass	☐	

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.	☐

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 6: Complete work records

Group 6 - Fail	☐	
Group 6 - Pass	☐	

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.	☐

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 7: Use maintenance specifications (distribution)

Group 7 - Fail	☐	
Group 7 - Pass	☐	

S27: Read, interpret, and follow maintenance specifications

Group 8: Electrical testing

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Conducts diagnostic testing to identify asset condition and identifies action required.	☐
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.	☐

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.	☐

Comments: (what was observed)
Questions to help evidence the Pass and Distinction 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, Pass or Distinction grade awarded for Group 8: Electrical testing

Group 8 - Fail	☐	
Group 8 - Pass	☐	
Group 8 - Distinction	☐	

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.	☐
Checks circuit breaker contact condition, removing and replacing or dressing in line with task requirements and company procedures.	☐
Cleans and lubricates operating mechanisms using approved lubricants in line with task requirements and company procedures.	☐
Adjusts, remove, and replaces components in line with task requirements and company procedures. (K47, S32, S33, S34, S35, S36, S38, S39)	☐
Takes oil samples using insulating oil sampling methods including sample taps and tubes in line with task requirements and company procedures. (K44, S37)	☐

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	☐	
Group 9 - Pass	☐	

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.	☐

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	☐	
Group 10 - Pass	☐	

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.	☐

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 11: Inspection and monitoring of substation equipment		
Group 11 - Fail	☐	
Group 11 - Pass	☐	

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.	☐

Comments: (what was observed)		
Questions to help evidence the Pass and Distinction 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 12: Switching operations		
Group 11 - Fail	☐	
Group 11 - Pass	☐	

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.	☐

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 7: Use maintenance specifications		
Group 7 - Fail	☐	
Group 7 - Pass	☐	
Group 7 - Distinction	☐	

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	☐

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 8: Use elevated work platforms

Group 8 - Fail	☐	
Group 8 - Pass	☐	

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.	☐
Uses diagnostic equipment to identify asset condition and identifies action required.	☐
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)	☐
Restores power in line with company procedures. (K66, S69)	☐

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.	☐

Comments: (what was observed)
Questions to help evidence the Pass and Distinction 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, Pass or Distinction grade awarded for Group 9: Electrical testing		
Group 9 - Fail	☐	
Group 9 - Pass	☐	
Group 9 - Distinction	☐	

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.	☐

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: Circuit breaker maintenance

Group 10 - Fail	☐	
Group 10 - Pass	☐	

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.	☐

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 7: Use engineering representations, drawings, and graphical information

Group 7 - Fail	☐	
Group 7 - Pass	☐	

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)	☐
Follows lifting plan in line with lifting operations - rigging and slinging - requirements. (K75, S76)	☐

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 8: Follow construction safety requirements

Group 8 - Fail	☐	
Group 8 - Pass	☐	

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	☐

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: Install new substation equipment

Group 9 - Fail	☐	
Group 9 - Pass	☐	

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.	☐

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: Install earthing associated with substations		
Group 10 - Fail	☐	
Group 10 - Pass	☐	

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	☐

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

Group 11 - Fail	☐	
Group 11 - Pass	☐	

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
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 impedance, continuity, and joint resistance. (K76, S86)	☐
Conducts mechanical testing including proof loading and torque tests in line with task requirements and company procedures. (K82, S87)	☐
Conducts alignment checks in line with task requirements and manufacturer's instructions. (S88)	☐
Takes oil samples for testing in line with task requirements and company procedures. (K83, S89)	☐
Interprets test results identifying action as required. (S91)	☐

To achieve a DISTINCTION the apprentice must achieve ALL the PASS descriptors and ALL of the following:descriptors	D
Evaluates the importance of applying electrical and mechanical testing in terms of preventing operational issues.	☐

Comments: (what was observed)
Questions to help evidence the Pass and Distinction 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, Pass or Distinction grade awarded for Group 12: Conduct testing on installed equipment		
Group 10 - Fail	☐	
Group 10 - Pass	☐	

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

Energy & Environment Awards are required to approve employers' trade test technical interviews materials to be used by employer assessors, apprentices and their managers. The following pages include an example trade test technical interview recording form for assessors. This form can be used by employers without adaptation or as a starting point for creating an employer-specific trade test technical interview recording form for employer assessors.

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 Energy & Environment Awards

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	
☐Apprentice ID checked	
Option	
Are Reasonable Adjustments required? Yes ☐ No ☐	
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)	☐
Employer Assessor suggested assessment continues (check the box)	☐

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 ☐	Fail
Employer Assessor Justification for Preliminary Grade awarded:		

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

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

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)	☐
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)	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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 1: Role and responsibilities	

Group 1 - Fail	☐	
Group 1 - Pass	☐	

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)	☐
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)	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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 2: Electrical danger - control and first aid	

Group 2 - Fail	☐	
Group 2 - Pass	☐	

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.	☐
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.	☐
Outlines rescue from height equipment and methods in line with company procedures.	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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 3: Working at height	

Group 3 - Fail	☐	
Group 3 - Pass	☐	

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.	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 4 - Pass	☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 5 - Pass	☐	

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 6 - Pass	☐	

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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 7: Handling and transportation of insulation oil	
Group 7 - Fail ☐	
Group 7 - Pass ☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 8 - Pass	☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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: Functional tests	
Group 9 - Fail ☐	
Group 9 - Pass ☐	

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 10 - Pass	☐	

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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: Ground mounted distribution oil filled switchgear maintenance	
Group 11 - Fail ☐	
Group 11 - Pass ☐	

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Explains distribution primary transformer and ancillary equipment maintenance requirements in line with company requirements	☐

Timeline reference:	*Record time if interview conducted by video conferencing*	
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	☐	
Group 12 - Pass	☐	

K50: Distribution primary transformer and ancillary equipment maintenance requirements

Group 13: Air break disconnectors maintenance requirements

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Explains air break switch disconnectors maintenance requirements in line with company procedures for motorised load breaking and manual non-load breaking equipment	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 13 - Pass	☐	

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

Transmission maintenance

Group 9: Insultation 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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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: Insultation testing	

Group 9 - Fail	☐	
Group 9 - Pass	☐	

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)	☐
Describes how they check circuit breaker contact condition and remove and replace or dress in line with task requirements and company procedures (S61)	☐

Timeline reference:	*Record time if interview conducted by video conferencing*	
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: Insulation medium maintenance		
Group 10 - Fail	☐	
Group 10 - Pass	☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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: Battery maintenance	

Group 11 - Fail	☐	
Group 11 - Pass	☐	

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)	☐
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)	☐
Describes how they conduct ancillary equipment maintenance including isolator dynamic torque testing in line with task requirements and company procedures (K64, S72)	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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: Transmission equipment maintenance	
Group 12 - Fail	☐
Group 12 - Pass	☐

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 13 - Pass	☐	

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)	☐
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)	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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: Construction equipment and cabling installation	

Group 9 - Fail	☐	
Group 9 - Pass	☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 10 - Pass	☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 11 - Pass	☐	

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

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

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Explains plant and equipment locking devices and interlocking systems requirements in their company	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 12 - Pass	☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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	☐	
Group 13 - Pass	☐	

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	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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 ☐	
Group 14 - Pass ☐	

S92: Replace components within equipment

Group 15: Removing cabling and equipment

To achieve a PASS the apprentice must demonstrate ALL the following pass descriptors	P
Describes how they remove cabling and equipment in line with company procedures	☐

Timeline reference:	*Record time if interview conducted by video conferencing*
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 15: Removing cabling and equipment	
Group 15 - Fail ☐	
Group 15 - Pass ☐	

S93: Remove cabling and equipment