ST0157/V1.3

DRAFT END-POINT ASSESSMENT PLAN FOR THE ELECTRICAL POWER PLANT AND PROTECTION ENGINEER APPRENTICESHIP

APPRENTICESHIP REFERENCE NUMBER	LEVEL OF THIS END-POINT ASSESSMENT (EPA)	INTEGRATION
ST0157	4	None

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Introduction and overview

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This document explains the requirements for end-point assessment (EPA) for the electrical power plant and protection engineer apprenticeship. End-point assessment organisations (EPAOs) must follow this when designing and delivering the EPA.
Electrical power plant and protection engineer apprentices, their employers and training providers should read this document.
A full-time electrical power plant and protection engineer apprentice typically spends 36 months on-programme. The apprentice must spend at least 12 months on-programme and complete the required amount of off-the-job training in line with the apprenticeship funding rules.
The EPA should be completed within an EPA period lasting typically 6 months.
The apprentice must complete their training and meet the gateway requirements before starting their EPA. The EPA will assess occupational competence.

An approved EPAO must conduct the EPA for this apprenticeship. Employers must work with the training provider to select an approved EPAO. The EPA incorporates a practical assessment with questions which is conducted by a technical expert to ensure that practice is in line with the current version of the Safety Rules and apprentices are protected from the inherent dangers of the system. The interview underpinned by a portfolio of evidence will be carried out by an independent assessor supported by a technical expert. The technical expert and independent assessor will be appointed by the EPAO.
This EPA has 2 assessment methods.
The grades available for each assessment method are below.

Assessment method 1 - practical assessment with questions:

- fail
- pass

Assessment method 2 - interview underpinned by a portfolio of evidence:

- fail
- pass
- distinction

The result from each assessment method is combined to decide the overall apprenticeship grade. The following grades are available for the apprenticeship:

- fail
- pass
- distinction

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EPA summary table

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On-programme - typically 36 months	The apprentice must: • complete training to develop the knowledge, skills and behaviours (KSBs) outlined in this apprenticeship's standard • complete training towards English and mathematics qualifications in line with the apprenticeship funding rules • compile a portfolio of evidence
End-point assessment gateway	The apprentice's employer must be content that the apprentice is occupationally competent. The apprentice must: • confirm they are ready to take the EPA • have achieved English and mathematics qualifications in line with the apprenticeship funding rules For the interview underpinned by a portfolio of evidence, the apprentice must submit a portfolio of evidence. Gateway evidence must be submitted to the EPAO, along with any organisation specific policies and procedures requested by the EPAO.
End-point assessment - typically 6 months	**The grades available for each assessment method are below** Practical assessment with questions: • fail • pass Interview underpinned by a portfolio of evidence: • fail • pass • distinction **Overall EPA and apprenticeship can be graded:** ○ fail ○ pass ○ distinction
Re-sits and re-takes	The details for re-sits and re-takes are below: • re-take and re-sit grade cap: pass • re-sit timeframe: typically 3 months • re-take timeframe: typically 6 months

Duration of end-point assessment period

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The EPA is taken in the EPA period. The EPA period starts when the EPAO confirms the gateway requirements have been met and is typically 6 months.
The EPAO should confirm the gateway requirements have been met and start the EPA as quickly as possible.

EPA gateway

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The apprentice's employer must be content that the apprentice is occupationally competent. That is, they are deemed to be working at or above the level set out in the apprenticeship standard and ready to undertake the EPA. The employer may take advice from the apprentice's training provider, but the employer must make the decision. The apprentice will then enter the gateway.
The apprentice must meet the gateway requirements before starting their EPA.

They must:

- confirm they are ready to take the EPA
- have achieved English and mathematics qualifications in line with the apprenticeship funding rules
- submit a portfolio of evidence for the interview underpinned by a portfolio of evidence

Portfolio of evidence requirements:
The apprentice must compile a portfolio of evidence during the on-programme period of the apprenticeship. It should only contain evidence related to the KSBs that will be assessed by the interview. It will typically contain 10 discrete pieces of evidence. Evidence must be mapped against the KSBs. Evidence may be used to demonstrate more than one KSB; a qualitative as opposed to quantitative approach is suggested.
Evidence sources may include workplace documentation and records, for example:

- workplace policies and procedures
- witness statements
- annotated photographs
- video clips with a maximum total duration 10 minutes; the apprentice must be in view and identifiable

This is not a definitive list; other evidence sources can be included.
The portfolio of evidence should not include reflective accounts or any methods of self-assessment. Any employer contributions should focus on direct observation of performance, for example, witness statements, rather than opinions. The evidence provided should be valid and attributable to the apprentice; the portfolio of evidence should contain a statement from the employer and apprentice confirming this.
The EPAO should not assess the portfolio of evidence directly as it underpins the interview. The independent assessor should review the portfolio of evidence to prepare questions for the interview. They are not required to provide feedback after this review.

Gateway evidence must be submitted to the EPAO, along with any organisation specific policies and procedures requested by the EPAO.

Order of assessment methods

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The assessment methods can be delivered in any order.
The result of one assessment method does not need to be known before starting the next.

Practical assessment with questions

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Overview

In a practical assessment with questions, a technical expert observes the apprentice completing a task or series of tasks set by the EPAO. The assessment environment must closely relate to the apprentice's natural working environment. It gives the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method.

Rationale

This assessment method is being used because:

- it is established practice in the power industry and supports regulatory requirements
- this is a practical role, which can be demonstrated through completing tasks
- it allows for consistency of opportunity for apprentices to demonstrate their competence against the mapped KSBs
- it assesses KSBs holistically and objectively
- it is a valid assessment because it involves direct testing under controlled conditions

Delivery

The practical assessment with questions must be structured to give the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method to the highest available grade.
A technical expert must conduct and assess the practical assessment with questions. During the observation the apprentice will be working on typical power system equipment which may be energised up to 400KV, in line with testing procedures under the supervision of the technical expert. The technical expert must therefore hold the appropriate authorisation to undertake the activities described in the practical assessment and be authorised by the relevant authority. Authorisations are required in accordance with the Health and Safety at Work Act and the Electricity at Work Act which form the legal basis for industry safety rules. Authorisation requirements prevent the technical expert being accompanied by an independent assessor. EPAOs will monitor technical experts undertaking observations through examination of documentation on a risk sampling basis.

The technical expert must only observe one apprentice at a time to ensure quality and rigour. They must be as unobtrusive as possible.
The EPAO must give an apprentice 2 weeks' notice of the practical assessment with questions.
The practical assessment with questions must take 4 hours.

The technical expert can increase the time of the practical assessment with questions by up to 10%. This time is to allow the apprentice to complete a task or respond to a question if necessary.
The practical assessment with questions cannot be split, other than for comfort breaks or to allow apprentices to move from one location to another. Where breaks occur, they will not count towards the total EPA time.
The EPAO must manage invigilation of the apprentice during the assessment, to maintain security of the EPA, in line with their malpractice policy. This includes breaks and moving between locations.
The technical expert must explain to the apprentice the format and timescales of the practical assessment with questions before it starts. This does not count towards the assessment time.
The technical expert must observe the following during the practical assessment:

- protection equipment and control system maintenance
- health, safety and risk management
- documentation
- test equipment
- technical specifications and engineering standards

These activities provide the apprentice with the opportunity to demonstrate the KSBs mapped to this assessment method.
The technical expert must ask questions.
The purpose of the questions is:

- to seek clarification where required
- to assess the level of competence against the grading descriptors

Questioning can occur both during and after the practical assessment. The time for questioning is included in the overall assessment time. The technical expert must ask at least 5 questions. To remain as unobtrusive as possible, the technical expert should ask questions during natural stops between tasks and after completion of work rather than disrupting the apprentice's flow. The technical expert must use the questions from the EPAO's question bank or create their own questions in line with the EPAO's training.
The technical expert 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 practical assessment with questions.
The technical expert must make the grading decision. The technical expert must assess the practical assessment and responses to questions holistically when deciding the grade.
The independent assessor must keep accurate records of the assessment. They must record:

- the KSBs observed
- the apprentice's answers to questions
- KSBs demonstrated in answers to questions
- the grade achieved

Assessment location

The practical assessment with questions must take place in a facility which simulates the apprentice's usual working environment, using energised power system equipment. Equipment and resources needed for the practical assessment with questions must be confirmed to be available by the EPAO, who can liaise with the employer to provide these. They must be in good and safe working condition.

Question and resource development

The EPAO must develop a purpose-built assessment specification and question bank. It is recommended this is done in consultation with employers of this occupation. The EPAO must maintain the security and confidentiality of EPA materials when consulting with employers. The assessment specification and question bank must be reviewed at least once a year to ensure they remain fit-for-purpose.

The assessment specification must be relevant to the occupation and demonstrate how to assess the KSBs mapped to this assessment method. The EPAO must ensure that questions are refined and developed to a high standard. The questions must be unpredictable. A question bank of sufficient size will support this.

The EPAO must ensure that the apprentice has a different set of tasks and questions in the case of re-sits and retakes, to minimise predictability.

The EPAO must produce the following materials to support the practical assessment with questions:

- assessment materials which include:
    - training materials
    - administration materials
    - moderation and standardisation materials
    - guidance materials
    - grading guidance
    - question bank
- EPA guidance for the apprentice and the employer

The EPAO must ensure that the EPA materials are subject to quality assurance procedures including standardisation and moderation.

Interview underpinned by a portfolio of evidence

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Overview

In the interview, an independent assessor supported by a technical expert asks the apprentice questions. It gives the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method.

Rationale

This assessment method is being used because:

- it assesses KSBs holistically and objectively
- it allows for the assessment of KSBs that do not occur on a predictable or regular basis
- it allows for assessment of responses where there are a range of potential answers
- it can be conducted remotely, potentially reducing cost

Delivery

The interview must be structured to give the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method to the highest available grade.
An independent assessor supported by a technical expert must conduct and assess the interview.
The technical expert will ask the questions on the following themes to assess the apprentice's competence:

- the electrical power sector
- technical reports
- functionality testing, fault finding and problem solving
- incident response procedures

The independent assessor will ask the questions on the following themes to assess the apprentice's competence:

- professional development
- data and maths
- environment and sustainability
- teamworking and equity, diversity and inclusion
- communication

The EPAO must give an apprentice 2 weeks' notice of the interview.
The independent assessor and technical expert must have at least 2 weeks to review the supporting documentation.
The apprentice must have access to their portfolio of evidence during the interview.
The apprentice can refer to and illustrate their answers with evidence from their portfolio of evidence however, the portfolio of evidence is not directly assessed.
The interview must last for 180 minutes. The technical expert and independent assessor can increase the time of the interview by up to 10%. This time is to allow the apprentice to respond to a question if necessary.
The independent assessor must explain to the apprentice the format and timescales of the interview before it starts. This does not count towards the assessment time.

The interview must contain at least 10 questions. Questions must be taken from either the EPAO's question bank or created by the independent assessor or technical expert in line with the EPAO's training. Follow-up questions are allowed where clarification is required.
The apprentice may choose to end the assessment method early. The apprentice must be confident they have demonstrated competence against the assessment requirements for the assessment method. The independent assessor or EPAO must ensure the apprentice is fully aware of all assessment requirements. The technical expert, independent assessor or EPAO cannot suggest or choose to end the assessment methods early, unless in an emergency. The EPAO is responsible for ensuring the apprentice understands the implications of ending an assessment early if they choose to do so. The technical expert or independent assessor may suggest the assessment continues. The independent assessor must document the apprentice's request to end the assessment early.
The independent assessor must make the grading decision.
The technical expert and independent assessor must keep accurate records of the assessment. They must record:

- the apprentice's answers to questions
- the KSBs demonstrated in answers to questions
- the grade achieved

Assessment location

The interview must take place in a suitable venue selected by the EPAO for example, the EPAO's or employer's premises.
The interview can be conducted by video conferencing. The EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.
The interview should take place in a quiet room, free from distractions and influence.

Question and resource development

The EPAO must develop a purpose-built assessment specification and question bank. It is recommended this is done in consultation with employers of this occupation. The EPAO must maintain the security and confidentiality of EPA materials when consulting with employers. The assessment specification and question bank must be reviewed at least once a year to ensure they remain fit-for-purpose.
The assessment specification must be relevant to the occupation and demonstrate how to assess the KSBs mapped to this assessment method. The EPAO must ensure that questions are refined and developed to a high standard. The questions must be unpredictable. A question bank of sufficient size will support this.
The EPAO must ensure that the apprentice has a different set of questions in the case of re-sits or re-takes.
The EPAO must produce the following materials to support the interview underpinned by a portfolio of evidence:

- assessment materials which include:
    - training materials
    - administration materials
    - moderation and standardisation materials
    - guidance materials
    - grading guidance
    - question bank
- EPA guidance for the apprentice and the employer

The EPAO must ensure that the EPA materials are subject to quality assurance procedures including standardisation and moderation.

Grading

Practical assessment with questions

Fail - does not meet pass criteria

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS
Protection equipment and control system maintenance K17 K20 S7 S8 S11 S12 B3	Takes responsibility for the quality of work when operating and maintaining protection and control equipment. (S8, B3) Applies maintenance engineering techniques and procedures to complete maintenance work on electrical power systems and protection equipment. (K20, S7) Checks protection and control settings and that microprocessor, numerical based protection systems and electromechanical relays are correctly installed and are operating within required parameters. (K17, S11, S12)
Health, safety and risk management K3 K4 K5 S1 S2 S3 B1	Takes responsibility for health and safety through the application of health and safety policies, procedures and safe systems of work for plant and electrical equipment in accordance with regulations and legislative requirements. (K3, K4, S1, B1) Applies high voltage risk management techniques and approaches to work tasks, and complies with relevant regulations and legislative requirements. (K5, S2, S3)
Documentation K24 S19	Completes the paper-based or electronic documentation required for work tasks in full in line with employer's procedures. (K24, S19)
Test equipment K22 S6	Uses test equipment, checking calibration is in line with requirements. (K22, S6)
Technical specifications and engineering standards K11 S15	Reads and interprets technical specifications, engineering diagrams, drawings and engineering standards to complete work tasks in accordance with task requirements. (K11, S15)

Interview underpinned by a portfolio of evidence

Fail - does not meet pass criteria

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
The electrical power sector K1 K2 K9 K10 K15 K16 S13	Describes the types of organisations that make up the electrical power sector their role, function, how they interact and the regulatory frameworks, reporting measures and quality, security and continuity regulations that apply to their organisation. (K1, K9, K10) Explains how they check that protection systems interface with high voltage equipment and coordinate with the high voltage system across control boundaries in accordance with employer's procedures and regulatory requirements (K1, S13) Explains their role, responsibilities, limits of autonomy and how they coordinate with other business functions. Describes how they use reporting channels to escalate issues outside of the scope of their role in line with employer's procedures. (K2) Describes how the high voltage electrical network operates and outlines power generation methods. Explains the purpose and operation methods for plant and	None.

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
	equipment that is applicable to their network. (K15, K16)	
Technical reports K12 S16	Describes how they use and interpret technical reports. (K12, S16)	None.
Professional development S21 B4	Outlines learning and development activities they have carried out and shows a commitment to future continued professional development to maintain and enhance competence of self and others. (S21, B4)	None.
Data and maths K13 K14 S5 S17	Explains how they apply power engineering mathematical principles to complete work-related tasks in line with requirements. (K13, S5) Explains how they collect, record, interpret and use internal and external data and information to support decision making within their work. (K14, S17)	Justifies the use of internal and external data and information to support decision making within their work. (K14, S17)
Environment and sustainability K6 K7 S4 B2	Describes the UK's net-zero commitment and the impact that low carbon energy has on the electricity network. (K6) Describes how they consider the environment and sustainability by applying environmental and sustainability procedures and working in compliance with regulations, standards and	Describes how they support the development of environmental and sustainability practice in the workplace for example, through promoting good practice to others or identifying improvement to practice. (K7, S4, B2)

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
	guidelines to complete work tasks. (K7, S4, B2)	
Team working and equity, diversity and inclusion K26 K27 S22 S23 B5	Describes how they apply team working principles and follow their organisation's policy on equality, diversity, and inclusion to collaborate with others in a way that promotes teamworking and inclusion. (K26, K27, S22, S23, B5)	Explains how they extend their team focus and commitment to inclusivity to wider teams or stakeholders. (K26, K27, S22, S23, B5)
Functionality testing and problem solving and fault finding K19 K21 K25 S10 S18 S20	Explains the impact that failure modes have on the electrical network and how they apply problem solving and fault finding techniques to identify problems or faults with plant or equipment. (K19, K25, S20) Describes testing techniques and procedures they use to simulate fault conditions and carry out functionality tests on high voltage plant, equipment, protection and control systems. Explains how they interpret results and take corrective action to restore functionality in line with employer's procedures. (K21, S10, S18)	Justifies the selection of testing techniques and procedures used to carry out functionality tests on high voltage plant, equipment, protection and control systems. (K21, S10)
Incident response procedures K8 S14	Describes their employer's emergency and incident response procedures they would follow in case of an emergency. (K8, S14)	Explains the importance of following their employer's emergency and incident response procedures and the consequences for the

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
		individual and business of not doing so. (K8, S14)
Substation control and metering equipment operation and maintenance K18 S9	Describes how they operate and maintain substation control and metering equipment in line with employer's procedures and operating parameters. (K18, S9)	None.
Work planning and prioritisation K23 S26	Describes how they apply work prioritisation techniques and approaches to complete work tasks and deliver projects in line with agreed timescales. (K23, S26)	Justifies their approach in terms of the impact on wider project delivery and other teams. (K23, S26)
Communication K28 S24 S25	Describes how they communicate verbally and in writing with colleagues, contractors and stakeholders to establish and maintain productive relationships to support task completion. (K28, S24, S25)	None.

Overall EPA grading

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Performance in the EPA determines the overall grade of:

- fail
- pass
- distinction

An independent assessor must individually grade the practical assessment with questions and interview underpinned by a portfolio of evidence in line with this EPA plan.
The EPAO must combine the individual assessment method grades to determine the overall EPA grade.

If the apprentice fails one assessment method or more, they will be awarded an overall fail.

To achieve an overall pass, the apprentice must achieve at least a pass in all the assessment methods. An apprentice must achieve a pass in the practical assessment with questions and a distinction in the interview underpinned by a portfolio of evidence to achieve an overall distinction.
Grades from individual assessment methods must be combined in the following way to determine the grade of the EPA overall.

PRACTICAL ASSESSMENT WITH QUESTIONS	INTERVIEW UNDERPINNED BY A PORTFOLIO OF EVIDENCE	OVERALL GRADING
Any grade	Fail	Fail
Fail	Any grade	Fail
Pass	Pass	Pass
Pass	Distinction	Distinction

Re-sits and re-takes

Edit re-sits and re-takes form

If the apprentice fails one assessment method or more, they can take a re-sit or a re-take at their employer's discretion. The apprentice's employer needs to agree that a re-sit or re-take is appropriate. A re-sit does not need further learning, whereas a re-take does. The apprentice should have a supportive action plan to prepare for a re-sit or a re-take.

The employer and the EPAO should agree the timescale for a re-sit or re-take. A re-sit is typically taken within 3 months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within 6 months of the EPA outcome notification.
Failed assessment methods must be re-sat or re-taken within a 6-month period from the EPA outcome notification, otherwise the entire EPA will need to be re-sat or re-taken in full.

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

The apprentice will get a maximum EPA grade of pass if they need to re-sit or re-take one or more assessment methods, unless the EPAO determines there are exceptional circumstances.

Roles and responsibilities

ROLES	RESPONSIBILITIES
Apprentice	As a minimum, the apprentice should: • complete on-programme training to meet the KSBs as outlined in the apprenticeship standard for a minimum of 12 months • complete the required amount of off-the-job training specified by the apprenticeship funding rules and as arranged by the employer and training provider • understand the purpose and importance of EPA • prepare for and undertake the EPA including meeting all gateway requirements
Employer	As a minimum, the apprentice's employer must: • select the training provider • work with the training provider to select the EPAO • work with the training provider, where applicable, to support the apprentice in the workplace and to provide the opportunities for the apprentice to develop the KSBs • arrange and support off-the-job training to be undertaken by the apprentice • decide when the apprentice is working at or above the apprenticeship standard and is ready for EPA • ensure the apprentice is prepared for the EPA • ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan • confirm arrangements with the EPAO for the EPA in a timely manner, including who, when, where • provide the EPAO with access to any employer-specific documentation as required for example, company policies • ensure that the EPA is scheduled with the EPAO for a date and time which allows appropriate opportunity for the apprentice to meet the KSBs

ROLES	RESPONSIBILITIES
	• ensure the apprentice is given sufficient time away from regular duties to prepare for, and complete the EPA • ensure that any required supervision during the EPA period, as stated within this EPA plan, is in place • ensure the apprentice has access to the resources used to fulfil their role and carry out the EPA for workplace based assessments • remain independent from the delivery of the EPA • pass the certificate to the apprentice upon receipt
EPAO	As a minimum, the EPAO must: • conform to the requirements of this EPA plan and deliver its requirements in a timely manner • conform to the requirements of the external quality assurance provider (EQAP) • understand the apprenticeship including the occupational standard and EPA plan • make all necessary contractual arrangements including agreeing the price of the EPA • develop and produce assessment materials including specifications and marking materials, for example mark schemes, practice materials, training material • maintain and apply a policy for the declaration and management of conflict of interests and independence. This must ensure, as a minimum, there is no personal benefit or detriment for those delivering the EPA or from the result of an assessment. It must cover: o apprentices o employers o independent assessors o any other roles involved in delivery or grading of the EPA • have quality assurance systems and procedures that ensure fair, reliable and consistent assessment and maintain records of internal quality assurance (IQA) activity for external quality assurance (EQA) purposes • appoint independent, competent, and suitably qualified assessors in line with the requirements of this EPA plan

ROLES	RESPONSIBILITIES
	• appoint administrators, invigilators and any other roles where required to facilitate the EPA • deliver induction, initial and on-going training for all their independent assessors and any other roles involved in the delivery or grading of the EPA as specified within this EPA plan. This should include how to record the rationale and evidence for grading decisions where required • conduct standardisation with all their independent assessors before allowing them to deliver an EPA, when the EPA is updated, and at least once a year • conduct moderation across all of their independent assessors' decisions once EPAs have started according to a sampling plan, with associated risk rating of independent assessors • monitor the performance of all their independent assessors and provide additional training where necessary • develop and provide assessment recording documentation to ensure a clear and auditable process is in place for providing assessment decisions and feedback to all relevant stakeholders • use language in the development and delivery of the EPA that is appropriate to the level of the apprenticeship • arrange for the EPA to take place in a timely manner, in consultation with the employer • provide information, advice, and guidance documentation to enable apprentices, employers and training providers to prepare for the EPA • confirm the gateway requirements have been met before they start the EPA for an apprentice • arrange a suitable venue for the EPA • maintain the security of the EPA including, but not limited to, verifying the identity of the apprentice, invigilation and security of materials • where the EPA plan permits assessment away from the workplace, ensure that the apprentice has access to the required resources and liaise with the employer to agree this if necessary • confirm the overall grade awarded • maintain and apply a policy for conducting appeals

ROLES	RESPONSIBILITIES
Independent assessor	As a minimum, an independent assessor must: • be independent, with no conflict of interest with the apprentice, their employer or training provider, specifically, they must not receive a personal benefit or detriment from the result of the assessment • have, maintain and be able to evidence up-to-date knowledge and expertise of the occupation • have the competence to assess the EPA and meet the requirements of the IQA section of this EPA plan • understand the apprenticeship's occupational standard and EPA plan • attend induction and standardisation events before they conduct an EPA for the first time, when the EPA is updated, and at least once a year • use language in the delivery of the EPA that is appropriate to the level of the apprenticeship • work with other personnel, where used, in the preparation and delivery of assessment methods • conduct the EPA to assess the apprentice against the KSBs and in line with the EPA plan • make final grading decisions in line with this EPA plan • record and report assessment outcome decisions • comply with the IQA requirements of the EPAO • comply with external quality assurance (EQA) requirements
Training provider	As a minimum, the training provider must: • conform to the requirements of the apprenticeship provider and assessment register • ensure procedures are in place to mitigate against any conflict of interest • work with the employer and support the apprentice during the off-the-job training to provide the opportunities to develop the KSBs as outlined in the occupational standard • deliver training to the apprentice as outlined in their apprenticeship agreement • monitor the apprentice's progress during any training provider led on-programme learning

ROLES	RESPONSIBILITIES
	• ensure the apprentice is prepared for the EPA • work with the employer to select the EPAO • advise the employer, upon request, on the apprentice's readiness for EPA • ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan • remain independent from the delivery of the EPA
Technical expert	As a minimum, the technical expert must: • have no direct connection or conflict of interest with the apprentice or training provider • understand the apprenticeship's occupational standard and EPA plan • attend induction and standardisation events as required by the EPAO • use language in the delivery of the EPA that is appropriate to the level of the apprenticeship • supervise the apprentice and carry out the assessment of the practical task in line with EPAO policies and procedures and this assessment plan • work with the EPAO and independent assessor in the preparation and delivery of the interview • record and report the assessment outcome for the practical task • comply with quality assurance requirements

Reasonable adjustments

Edit reasonable adjustments form

Reasonable adjustments
The EPAO must have reasonable adjustments arrangements for the EPA.

This should include:

- how an apprentice qualifies for a reasonable adjustment
- what reasonable adjustments may be made

Adjustments must maintain the validity, reliability and integrity of the EPA as outlined in this EPA plan.

Special considerations
The EPAO must have special consideration arrangements for the EPA.

This should include:

- how an apprentice qualifies for a special consideration
- what special considerations will be given

Special considerations must maintain the validity, reliability and integrity of the EPA as outlined in this EPA plan.

Internal quality assurance

Edit internal quality assurance form

Internal quality assurance refers to the strategies, policies and procedures that an EPAO must have in place to ensure valid, consistent and reliable EPA decisions.

EPAOs for this EPA must adhere to the requirements within the roles and responsibilities table.

They must also appoint technical experts and independent assessors:

- technical experts must be able to demonstrate the required level of electrical competence needed by holding an electrical engineering qualification at Level 4 or equivalent and having a minimum of 5 years' experience as a practitioner in this work environment. Due to the small number of technical experts in the industry EPAOs may need to appoint a technical expert from within the apprentice's own organisation or someone who may be known to the apprentice. For this reason during the interview they support an independent assessor by asking questions on the themes assigned to them and providing confirmation of employer policies and procedures as required. Independent assessors must hold an assessor qualification. The assessor and technical expert must be independent and not have been directly involved in the training or management of the apprentice. The independent assessor's role is to ensure the interview is conducted fairly and consistently in line with the EPAO's policies and processes.

Value for money

Edit value for money form

Affordability of the EPA will be aided by using at least some of the following:

- utilising digital remote platforms to conduct applicable assessment methods
- using the employer's premises
- conducting assessment methods on the same day

Professional recognition

Edit professional recognition form

This apprenticeship is not aligned to professional recognition.

Mapping of KSBs to assessment methods

KNOWLEDGE	ASSESSMENT METHODS
K1 The electrical power sector. Types of organisations, how they interact, control boundaries, structure, role and function. Regulators. System Operator. Stakeholders and customer requirements.	Interview underpinned by a portfolio of evidence
K2 Electrical power protection engineer role, responsibilities limits of autonomy and coordination with other business functions. Reporting channels within the power sector.	Interview underpinned by a portfolio of evidence
K3 Awareness of health and safety regulations relevant to the engineer's role. CDM requirements. Control of Substances Hazardous to Health (COSHH). Display Screen Equipment. Fire regulations. Health and Safety at Work Act – responsibilities. Managing Health and Safety at Work Regulations. Manual handling. Noise regulation. Provision and use of Work Equipment Regulations (PUWER). Personal Protective Equipment (PPE). Working at height. Reporting of Injuries, Diseases and Dangerous Occurrence Regulations (RIDDOR). Electricity at Work Regulations.	Practical assessment with questions
K4 Health and safety procedures and safe systems of work for plant and equipment. Electrical safety.	Practical assessment with questions
K5 Risk assessments, risk management techniques and approaches, the hierarchy of control. Method statements.	Practical assessment with questions
K6 The UK's net zero commitment. The impact of low carbon energy on the network. Environmental regulations and standards: Environmental Protection Act, and Hazardous Waste Regulations.	Interview underpinned by a portfolio of evidence
K7 Sustainability principles, design and development considerations. Waste reduction and recycling.	Interview underpinned by a portfolio of evidence
K8	Interview underpinned by a portfolio of evidence

KNOWLEDGE	ASSESSMENT METHODS
Incident management and emergency procedures. Environmental incidents.	
K9 Awareness of regulatory frameworks, regulatory measures and reporting requirements.	Interview underpinned by a portfolio of evidence
K10 Electricity Supply Standards, Quality and Continuity Regulations. Electricity security and quality of supply standards. Business continuity.	Interview underpinned by a portfolio of evidence
K11 Engineering technical specifications, and engineering standards. What they are and how to use them.	Practical assessment with questions
K12 Engineering technical reports. What they are and how to use them.	Interview underpinned by a portfolio of evidence
K13 Power engineering mathematical principles.	Interview underpinned by a portfolio of evidence
K14 Data analysis techniques and reporting systems.	Interview underpinned by a portfolio of evidence
K15 High voltage electrical network operations and topologies.	Interview underpinned by a portfolio of evidence
K16 High voltage power generation methods, transmission and distribution. Plant and equipment purpose and operation.	Interview underpinned by a portfolio of evidence
K17 Protection and control equipment. Design, diagrams, drawings, operation and settings. Equipment coordination and interface with the high voltage system and equipment. Impact on the network. Microprocessor and numerical based protection systems and electromechanical relays.	Practical assessment with questions
K18 Substation control and metering equipment, operation, maintenance and settings.	Interview underpinned by a portfolio of evidence

KNOWLEDGE	ASSESSMENT METHODS
K19 Plant and equipment failure modes. The impact on the electrical network. Fault analysis methods, results interpretation and corrective action.	Interview underpinned by a portfolio of evidence
K20 Maintenance and engineering techniques and procedures for electrical power systems and protection equipment. Transformers, switchgear, conductors, battery systems, earthing systems and ancillary equipment.	Practical assessment with questions
K21 Testing techniques and procedures for high voltage plant and equipment. Functionality testing.	Interview underpinned by a portfolio of evidence
K22 Test equipment, how it is used and maintenance and calibration requirements.	Practical assessment with questions
K23 Techniques and approaches for the planning and prioritisation of work tasks and project delivery.	Interview underpinned by a portfolio of evidence
K24 Documentation: methods and requirements - electronic and paper.	Practical assessment with questions
K25 Problem solving and fault finding.	Interview underpinned by a portfolio of evidence
K26 Team working principles.	Interview underpinned by a portfolio of evidence
K27 Principles of equity, diversity, and inclusion in the workplace. Unconscious bias.	Interview underpinned by a portfolio of evidence
K28 Communication techniques: verbal and written.	Interview underpinned by a portfolio of evidence
SKILL	**ASSESSMENT METHODS**
S1 Apply health and safety policies, procedures and electricity network safe systems of work.	Practical assessment with questions

KNOWLEDGE	ASSESSMENT METHODS
S2 Comply with regulations and manage work to meet regulatory and legislative requirements.	Practical assessment with questions
S3 Apply high voltage risk management techniques and approaches.	Practical assessment with questions
S4 Apply environmental and sustainability procedures in compliance with regulations, standards, and guidelines.	Interview underpinned by a portfolio of evidence
S5 Apply mathematical principles.	Interview underpinned by a portfolio of evidence
S6 Use test equipment and check calibration.	Practical assessment with questions
S7 Apply maintenance engineering techniques and procedures to electrical power systems and protection equipment.	Practical assessment with questions
S8 Operate and maintain protection and control equipment.	Practical assessment with questions
S9 Operate and maintain substation control and metering equipment.	Interview underpinned by a portfolio of evidence
S10 Carry out functionality tests on high voltage plant, equipment, protection and control systems, simulate fault conditions.	Interview underpinned by a portfolio of evidence
S11 Check protection and control settings.	Practical assessment with questions
S12 Check installation and operation of microprocessor, numerical based protection systems and electromechanical relays.	Practical assessment with questions
S13 Check protection systems interface with high voltage equipment and coordinate with the high voltage system, including work across control boundaries.	Interview underpinned by a portfolio of evidence

KNOWLEDGE	ASSESSMENT METHODS
S14 Follow emergency and incident response procedures.	Interview underpinned by a portfolio of evidence
S15 Read and interpret technical specifications, engineering diagrams and drawings.	Practical assessment with questions
S16 Read and interpret technical reports.	Interview underpinned by a portfolio of evidence
S17 Collect, record and interpret internal and external data and information. Use information and data to support business decisions.	Interview underpinned by a portfolio of evidence
S18 Interpret test results and take corrective action.	Interview underpinned by a portfolio of evidence
S19 Complete documentation.	Practical assessment with questions
S20 Apply problem solving or fault finding techniques.	Interview underpinned by a portfolio of evidence
S21 Carry out and record learning and development activities.	Interview underpinned by a portfolio of evidence
S22 Apply team working principles.	Interview underpinned by a portfolio of evidence
S23 Follow equity, diversity and inclusion policies.	Interview underpinned by a portfolio of evidence
S24 Establish and maintain productive working relationships, for example with colleagues, contractors or stakeholders.	Interview underpinned by a portfolio of evidence
S25 Communicate verbally and in writing with others for example, colleagues, contractors and stakeholders.	Interview underpinned by a portfolio of evidence
S26	Interview underpinned by a portfolio of evidence

KNOWLEDGE	ASSESSMENT METHODS
Apply work prioritisation techniques and approaches to work tasks.	
BEHAVIOUR	**ASSESSMENT METHODS**
B1 Take responsibility for health and safety.	Practical assessment with questions
B2 Considers the environment and sustainability.	Interview underpinned by a portfolio of evidence
B3 Take responsibility for the quality of work. For example, decisive, self-reliant, and motivated.	Practical assessment with questions
B4 Committed to maintaining and enhancing competence of self and others through Continued Professional Development (CPD).	Interview underpinned by a portfolio of evidence
B5 Collaborate with others and promote teamwork for example, across disciplines, and external stakeholders, promoting inclusion.	Interview underpinned by a portfolio of evidence

Mapping of KSBs to grade themes

Edit add grade themes formEdit mapping of ksbs to grade themes form

Practical assessment with questions

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
Protection equipment and control system maintenance K17 K20 S7 S8 S11 S12 B3	Protection and control equipment. Design, diagrams, drawings, operation and settings. Equipment coordination and interface with the high voltage system and equipment. Impact on the network. Microprocessor and numerical based protection systems and electromechanical relays. (K17) Maintenance and engineering techniques and procedures	Apply maintenance engineering techniques and procedures to electrical power systems and protection equipment. (S7) Operate and maintain protection and control equipment. (S8)	Take responsibility for the quality of work. For example, decisive, self-reliant, and motivated. (B3)

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
	for electrical power systems and protection equipment. Transformers, switchgear, conductors, battery systems, earthing systems and ancillary equipment. (K20)	Check protection and control settings. (S11) Check installation and operation of microprocessor, numerical based protection systems and electromechanical relays. (S12)	
Health, safety and risk management K3 K4 K5 S1 S2 S3 B1	Awareness of health and safety regulations relevant to the engineer's role. CDM requirements. Control of Substances Hazardous to Health (COSHH). Display Screen Equipment. Fire regulations. Health and Safety at Work Act – responsibilities. Managing Health and Safety at Work Regulations. Manual handling. Noise regulation. Provision and use of Work Equipment Regulations (PUWER). Personal Protective Equipment (PPE). Working at height. Reporting of Injuries, Diseases and Dangerous Occurrence Regulations (RIDDOR). Electricity at Work Regulations. (K3) Health and safety procedures and safe systems of work for plant and equipment. Electrical safety. (K4) Risk assessments, risk management techniques and approaches, the hierarchy of control. Method statements. (K5)	Apply health and safety policies, procedures and electricity network safe systems of work. (S1) Comply with regulations and manage work to meet regulatory and legislative requirements. (S2) Apply high voltage risk management techniques and approaches. (S3)	Take responsibility for health and safety. (B1)

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
Documentation K24 S19	Documentation: methods and requirements - electronic and paper. (K24)	Complete documentation. (S19)	None
Test equipment K22 S6	Test equipment, how it is used and maintenance and calibration requirements. (K22)	Use test equipment and check calibration. (S6)	None
Technical specifications and engineering standards K11 S15	Engineering technical specifications, and engineering standards. What they are and how to use them. (K11)	Read and interpret technical specifications, engineering diagrams and drawings. (S15)	None

Interview underpinned by a portfolio of evidence

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
The electrical power sector K1 K2 K9 K10 K15 K16 S13	The electrical power sector. Types of organisations, how they interact, control boundaries, structure, role and function. Regulators. System Operator. Stakeholders and customer requirements. (K1) Electrical power protection engineer role, responsibilities limits of autonomy and coordination with other business functions. Reporting channels within the power sector. (K2) Awareness of regulatory frameworks, regulatory measures and reporting requirements. (K9)	Check protection systems interface with high voltage equipment and coordinate with the high voltage system, including work across control boundaries. (S13)	None

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
	Electricity Supply Standards, Quality and Continuity Regulations. Electricity security and quality of supply standards. Business continuity. (K10) High voltage electrical network operations and topologies. (K15) High voltage power generation methods, transmission and distribution. Plant and equipment purpose and operation. (K16)		
Technical reports K12 S16	Engineering technical reports. What they are and how to use them. (K12)	Read and interpret technical reports. (S16)	None
Professional development S21 B4	None	Carry out and record learning and development activities. (S21)	Committed to maintaining and enhancing competence of self and others through Continued Professional Development (CPD). (B4)
Data and maths K13 K14 S5 S17	Power engineering mathematical principles. (K13) Data analysis techniques and reporting systems. (K14)	Apply mathematical principles. (S5) Collect, record and interpret internal and external data and information. Use information and data to support business decisions. (S17)	None

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
Environment and sustainability K6 K7 S4 B2	The UK's net zero commitment. The impact of low carbon energy on the network. Environmental regulations and standards: Environmental Protection Act, and Hazardous Waste Regulations. (K6) Sustainability principles, design and development considerations. Waste reduction and recycling. (K7)	Apply environmental and sustainability procedures in compliance with regulations, standards, and guidelines. (S4)	Considers the environment and sustainability. (B2)
Team working and equity, diversity and inclusion K26 K27 S22 S23 B5	Team working principles. (K26) Principles of equity, diversity, and inclusion in the workplace. Unconscious bias. (K27)	Apply team working principles. (S22) Follow equity, diversity and inclusion policies. (S23)	Collaborate with others and promote teamwork for example, across disciplines, and external stakeholders, promoting inclusion. (B5)
Functionality testing and problem solving and fault finding K19 K21 K25 S10 S18 S20	Plant and equipment failure modes. The impact on the electrical network. Fault analysis methods, results interpretation and corrective action. (K19) Testing techniques and procedures for high voltage plant and equipment. Functionality testing. (K21) Problem solving and fault finding. (K25)	Carry out functionality tests on high voltage plant, equipment, protection and control systems, simulate fault conditions. (S10) Interpret test results and take corrective action. (S18) Apply problem solving or fault finding techniques. (S20)	None

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
Incident response procedures K8 S14	Incident management and emergency procedures. Environmental incidents. (K8)	Follow emergency and incident response procedures. (S14)	None
Substation control and metering equipment operation and maintenance K18 S9	Substation control and metering equipment, operation, maintenance and settings. (K18)	Operate and maintain substation control and metering equipment. (S9)	None
Work planning and prioritisation K23 S26	Techniques and approaches for the planning and prioritisation of work tasks and project delivery. (K23)	Apply work prioritisation techniques and approaches to work tasks. (S26)	None
Communication K28 S24 S25	Communication techniques: verbal and written. (K28)	Establish and maintain productive working relationships, for example with colleagues, contractors or stakeholders. (S24) Communicate verbally and in writing with others for example, colleagues, contractors and stakeholders. (S25)	None

Supporting information

External quality assurance

Edit external quality assurance - eqa form

Option selected: Ofqual

Involved employers

National Grid, AMEY, SSE, Freedom Group, Grosvenor Power, IUS, Morrison Utility Services, NIE, Northern Powergrid, Scottish Power, SPIE-ENS, Electricity Northwest, UK Power Networks, WPD, The Institution of Engineering and Technology

Other involved stakeholders