

SAFETY RULES FOR THE OPERATION OF ELECTRICAL EQUIPMENT

I. GENERAL PROVISIONS

1. The **Safety Rules for the Operation of Electrical Equipment** (hereinafter referred to as the *Rules*) establish safety requirements for operating electrical equipment and are mandatory for:
 - Electricity producers,
 - Transmission system and distribution network operators,
 - Personnel, operating electrical equipment,
 - Electricity consumers.

These Rules **do not apply** to:

- The operation of household portable electrical appliances,
- Internal electrical systems of vehicles,
- Other areas where electricity with special parameters is used.

When operating household portable electrical appliances, users must follow the **manufacturer's operating and safety instructions**.

2. Persons operating electrical equipment shall follow these Rules and the employee safety and health instructions (hereinafter – ESHI), which are prepared and approved in accordance with the procedure established by the Law on Safety and Health of Employees of the Republic of Lithuania (Official Gazette, 2003, No. 70-3170).

3. The requirements of the Rules apply to electrical equipment operating at alternating current voltages above **50 V** and direct current voltages above **75 V**.

4. The owner of the electrical equipment—or, if employment relations are regulated by an employment contract, the person authorized by the employer—must mark all operating electrical equipment in operational and technical documentation according to the procedure established by normative acts and/or the equipment owner's internal regulations.

It is prohibited to operate electrical equipment that is not marked as operational in the operational and technical documentation.

5. Electrical equipment in operation must comply with the requirements of the **Electrical Equipment Installation Rules (EEIR)** and the **Technical Operation Instructions (TOI)** prepared by the manufacturer. Before starting the operation of electrical equipment, the requirements of these Rules, the **Rules for the Operation of Power Plants and Electrical Networks (ROPPEN)**, and other legal acts must be fulfilled.

6. When operating electrical current equipment with special parameters (such as communication systems, electrified urban and railway infrastructure, air and water transport, and others), it is

necessary to follow specialized regulations prepared by other institutions, provided that their provisions do not contradict the requirements of these Rules.

7. Persons who violate the Rules shall be held liable in accordance with the procedure established by the Code of Administrative Offenses of the Republic of Lithuania and other legal acts.

8. The owner of the electrical equipment must ensure that the equipment is maintained in a safe condition, regularly inspected, and operated in accordance with the established procedures and safety requirements.

9. The operator of the electrical equipment is responsible for complying with the requirements of these Rules. The employer is responsible for providing employees with the necessary electrical protection equipment and the required normative documentation.

10. For the purposes of these Rules, the following definitions apply:

Protection against electricity – a set of technical and organizational measures and legal acts designed to protect people from the dangerous and harmful effects of electric current, electric arc, electromagnetic field, and static electricity.

Protective neutral grounding – the connection of conductive enclosures and other structural parts of electrical equipment to the grounded neutral conductor of the power supply network.

Protective disconnection – the rapid disconnection of a residual current device (RCD), ensuring a combination of current magnitude and duration that is not dangerous to humans when a leakage current to ground occurs in the protected circuit.

Protective grounding – the connection of conductive enclosures and other structural parts of electrical equipment to a grounding device via an electrical circuit.

Barrier – an element that protects workers from direct contact with live parts in any direction and from electric arcs that may occur during the operation of switching devices or similar equipment.

Person responsible for the electrical system – an employee with appropriate qualifications appointed by the company manager, branch manager, owner of the electrical equipment, employer, or their authorized representative, responsible for the technical condition, efficient, reliable, and safe operation of the electrical equipment of the company, its branch, division, or owner (user).

High voltage – voltage higher than 1000 V for alternating current and higher than 1500 V for direct current.

Automated control - remote switching of electrical equipment (lines, transformers, busbars, RAA circuits, etc.) in transmission and distribution networks from the control system (SCADA) of the respective transmission or distribution network operator, where the sequence of switching actions for individual network elements (circuit breakers, disconnectors, and grounding switches) and secondary circuits is programmed according to switching sheets.

Workplace preparation – a set of technical measures aimed at ensuring a safe working environment for employees performing tasks on electrical equipment, as well as warning unauthorized persons about the electrical hazards present in the work area and prohibiting their access.

Work categories – classification of work based on electrical hazard:

- **Category I – work performed on or near live parts.**
- **Category II – work performed with the power disconnected.**
- **Category III – work performed without disconnecting power, at a safe distance from live parts.**

Double insulation – a system of insulation consisting of both basic and supplementary insulation.

Electrical equipment operator – the owner of the electrical equipment or a person holding a certificate issued by the National Energy Regulatory Council (hereinafter – the Council) authorizing them to operate electrical equipment.

Electrified mechanism – a work tool equipped with an electric drive.

Electrical equipment – an element of the electrical network (circuit) that modifies, regulates, measures, or controls electrical and non-electrical parameters of various processes, machines, and mechanisms, and generates, transmits, distributes, transforms, or utilizes electrical energy.

Electrical equipment operator – the owner of the electrical equipment or a legal entity holding a certificate from the National Energy Inspectorate authorizing the operation of that type of electrical equipment, as well as any legal or natural person who owns or manages (e.g., in balance sheets) operational electrical equipment.

Electrical equipment room – a room where operational electrical equipment is installed, and into which only the electrical technician responsible for the equipment is allowed to enter without supervision. The room must be marked with a sign: “CAUTION, ELECTRIC SHOCK HAZARD” or “STOP! DANGER TO LIFE.”

Owner of electrical equipment – a natural or legal person who owns the electrical equipment either by ownership or under trust.

Electrical equipment area – a permanently fenced area where operational electrical equipment is installed, and into which only the electrical technician responsible for the equipment is allowed to enter without supervision. The gate to the area must be marked with a sign: “CAUTION, ELECTRIC SHOCK HAZARD” or “STOP! DANGER TO LIFE.”

Other persons may enter this area only with the permission of the mentioned electrical technician or under their constant supervision.

Electrotechnical work – work that requires the qualification of a certified electrical technician.

Classes of electrotechnical products based on protection against electrical hazards:

- **Class 0** – electrotechnical products in which protection against dangerous electric current is provided only by basic insulation. These products do not have elements for connecting a protective grounding conductor.

- **Class 0I** – electrotechnical products in which protection is provided by basic insulation and which include a grounding element. They are powered from sockets without a grounding contact.
- **Class I** – electrotechnical products in which protection is provided not only by basic insulation but also by connecting protective grounding (PE) conductors to their enclosures. These are connected to power sockets with a grounding contact.
- **Class II** – electrotechnical products in which protection is ensured by double or reinforced insulation.
- **Class III** – electrotechnical products in which protection is ensured by using a safe extra-low voltage, and no part of the equipment exceeds 50 V AC or 75 V DC.

Induced voltage zone – a zone along overhead power lines (OHL) with alternating current voltage of 110 kV or higher, consisting of a strip of land and airspace on both sides of the line, bounded by vertical planes located less than:

- **100 meters from the axis of a 110 kV OHL;**
- **200 meters from the axis of a 330–400 kV OHL.**

Disconnection of equipment – the interruption of all electrical circuits between the power source and the equipment using switching devices that provide a visible indication of the contact position.

Voltage indicator – a device or instrument used to determine the presence or absence of voltage in electrical circuits.

Voltage shutdown – the interruption of the electrical circuit between the equipment and the power source using switching and control devices, without a visible break in electrical contact.

Equipment maintenance – all work performed on the equipment (including replacement or reconstruction of individual components), which does not alter the original characteristics, performance, pressure or temperature parameters, energy or raw material consumption, or other specifications listed in the equipment's documentation.

Cable line (CL) protection zone:

a) A strip of land along an underground cable line, bounded on both sides by vertical planes located:

- **1 meter from the outermost structural points of the line,**
- **0.5–0.6 meters from the foundations of buildings and structures.**

b) A water layer from the surface to the bottom, bounded on both sides by vertical planes located:

- **100 meters from the outermost cables in navigable water bodies,**
- **In non-navigable water bodies – as defined for overhead lines.**

Permissible electric field strength – the numerical value of the electric field strength that, when acting on a worker throughout their working period, does not cause health disorders or illness and does not affect heredity.

Magnetic field strength – a fundamental characteristic of a magnetic field, defined as the ratio of the maximum torque acting on a current-carrying loop in the field to the magnetic moment of the loop. The SI unit of magnetic field strength is amperes per meter (A/m) or kiloamperes per meter (kA/m = 1000 A/m).

Operational (Qualified personnel) worker – an electrotechnical worker authorized to perform operational supervision and/or switching of electrical equipment while on duty.

Operational maintenance work – ongoing operational tasks that ensure the technical condition and control of active electrical networks and equipment.

Operational repair worker – a specially trained and qualified worker who operates active electrical equipment and is authorized to perform operational switching.

Overhead line in an induced voltage zone – an overhead line, or segments of it totaling at least 2 km in length, located within the induced voltage zone of another active 110 kV or higher voltage overhead line. Companies must maintain a list of OHLs located in induced voltage zones.

Overhead line (OHL) protection zone – a zone along an overhead line with alternating or direct current, consisting of a strip of land and airspace on both sides of the line, bounded by vertical planes located at the following distances from the outermost conductors (when not deflected sideways):

- Up to 1 kV – 2 meters
- 6 and 10 kV – 10 meters
- 35 kV – 15 meters
- 110 kV – 20 meters
- 330–400 kV – 30 meters

Basic insulation – insulation of live parts intended to provide fundamental protection against hazardous electrical effects.

Supplementary insulation – insulation that complements the basic insulation and provides protection against hazardous electrical effects in case the basic insulation fails.

Industrial frequency (50 Hz) electromagnetic field exposure zone – a space where the electric field strength of industrial frequency (50 Hz) is at least 5 kV/m and/or the magnetic field strength is at least 0.9 kA/m.

Industrial frequency (50 Hz) electromagnetic field intensity parameters – electric field strength and magnetic field strength.

Repair worker – an electrotechnical worker who performs repairs on operational electrical equipment.

Safe extra-low voltage – voltage not exceeding 50 V AC and 75 V DC.

Reinforced insulation – a single insulation system of live parts that provides the same level of protection as double insulation.

Administrative documents – legal acts issued by company or institution managers, or by public officials authorized by other legal acts, for the implementation of public or internal administrative functions (decisions, orders, directives, etc.).

Technical maintenance – a set of preventive and other measures aimed at ensuring that electrical equipment functions reliably during its economically or otherwise justified service life, and that the safe operation of electrical networks is maintained (e.g., fault elimination, replacement of damaged or emergency network elements, maintenance and inspection of various devices, etc.).

User electrical equipment – equipment for which electricity consumption is accounted for through commercial billing.

Operational electrical equipment – electrical equipment that is energized or can be energized at any time via switching devices or designated mechanisms.

Low voltage – voltage from 50 V to 1000 V AC and from 75 V to 1500 V DC.

Step voltage – the portion of voltage experienced by a person when current flows through the body from one foot to the other.

II. REQUIREMENTS FOR ELECTROTECHNICAL WORKERS

11. Electrotechnical workers are defined as natural persons who possess the appropriate education specified in the *General Scheme for the Certification of Energy Workers*, approved by the Council's Resolution No. O3E-1458 of December 18, 2020, titled "*On the Approval of the General Scheme for the Certification of Energy Workers*" (hereinafter – the Scheme), or who have completed an internship and are certified according to the *Procedure for the Certification of Workers Installing and/or Operating Energy Facilities*, approved by the Order of the Minister of Energy of the Republic of Lithuania No. 1-220 of November 7, 2012, titled "*On the Approval of the Procedure for the Certification of Workers Installing and/or Operating Energy Facilities*" (hereinafter – the Procedure), and who hold an energy worker certificate in the prescribed format. The energy worker certificate grants the right to work with electrical equipment at the voltage level specified in the certificate.

12. An electrotechnical worker may be assigned a specific electrical safety category depending on how their knowledge is assessed by the certification commission and based on the electrotechnical education they have obtained.

13. The following electrical safety categories may be granted to electrotechnical workers:

- **13.1. High category (hereinafter – HC);**
- **13.2. Intermediate category (hereinafter – IC);**

- **13.3. Basic category (hereinafter – BC).**

14. The minimum requirements for education, additional competencies, and professional experience for each electrical safety category of electrotechnical workers working with electrical equipment are defined in the Scheme.

15. Individuals are permitted to work independently on operational electrical equipment if they meet the following criteria:

- **15.1.** Are at least 18 years of age;
- **15.2.** Have undergone a health check in accordance with the procedure and frequency established by the Order of the Minister of Health of the Republic of Lithuania No. 301 of May 31, 2000, “*On Preventive Health Checks in Healthcare Institutions*”, and have been deemed fit to work with operational electrical equipment;
- **15.3.** Have received workplace instruction in accordance with the *Procedure for Preparing Occupational Safety and Health Instructions and Instructing Employees Temporarily Assigned to a Company by Agreement Between Employers*, approved by the Chief State Labour Inspector of the Republic of Lithuania by Order No. V-240 of August 10, 2012;
- **15.4.** Have received theoretical and practical training on safe working practices, first aid for electric shock and other traumatic hazards;
- **15.6.** Are certified according to the Procedure and hold an energy worker certificate indicating the rights granted to them.

16. Newly hired individuals may work on operational electrical equipment only under the supervision of a certified electrotechnical worker until they are certified for the position they hold at the workplace. In this case, the newly hired individuals are referred to as trainees.

17. Electrotechnical workers are instructed, certified, and their qualifications are improved in accordance with the Energy Law, the Procedure, the Scheme, and other applicable legal acts.

18. Civil servants or other occupational safety and health specialists who supervise compliance with electrical safety requirements must hold the High Category (HC) of electrical safety.

18.¹ Designers, surveyors, representatives of supervisory institutions, members of delegations and excursions may enter electrical equipment rooms and/or areas only when accompanied by an electrotechnical worker. Non-electrotechnical personnel performing physical security functions in electrical equipment rooms and/or areas may enter these premises only after receiving instruction, in accordance with the procedure established by the equipment owner or their authorized representative.

III. FUNCTIONS, RIGHTS, AND DUTIES OF ELECTROTECHNICAL WORKERS

19. Electrotechnical workers organize and carry out technical maintenance, repair, installation, adjustment, and testing of electrical equipment. They perform switching operations and manage the operational control of the equipment assigned to them. Based on their functions in organizing and performing work on electrical equipment, electrotechnical workers are classified as follows:

19.1. Employer's authorized person (not necessarily an electrotechnical worker in non-electrical energy companies);

19.2. Person responsible for the user's electrical system;

19.3. Person authorized to personally inspect electrical equipment;

19.4. Operational or operational repair worker;

19.5. Repair worker;

19.6. Work supervisor;

19.7. Work executor;

19.8. Supervisor;

19.9. Crew member;

19.10. Trainee.

20. The employer or authorized person is responsible for ensuring the safety and health of workers when organizing and performing work on electrical equipment owned or managed by the employer (e.g., leased, under concession, or by authorization). This must be done in accordance with company documentation and by assigning properly trained electrotechnical workers with the required qualifications to perform these functions.

If the company does not have electrotechnical workers with the required qualifications, contracts may be concluded with individuals who hold a certificate issued by the Council for operating the relevant electrical equipment.

21. A person responsible for the user's electrical equipment must be appointed for its operation. If the permitted power of the electrical equipment exceeds 100 kW or if high-voltage equipment is present, this person must hold the High Category (HC) of electrical safety. In other cases, the responsible person may be an Intermediate Category (IC) worker with at least one year of experience working with electrical equipment. In electrical energy companies, such a person is appointed only for auxiliary facilities (e.g., workshops, warehouses, administrative buildings, etc.).

22. The employer or their authorized person appoints the individual responsible for the electrical system. Companies, institutions, associations, or farmers who do not have a qualified employee capable of assuming this responsibility may enter contracts with individuals who hold a certificate issued by the Council for operating the relevant electrical equipment. In such cases, the person responsible for the electrical system is appointed by the individual operating the equipment.

The person responsible for the electrical system must ensure the reliable operation of electrical equipment in accordance with the requirements of the Rules, Electrical Equipment Installation Technical Requirements (EEITR), and Technical Operation Rules (TOR), as well as ensure the safety and health of workers.

23. If the permitted power of low-voltage electrical equipment does not exceed 30 kW or if a single-phase electrical connection is used, it is not mandatory to appoint a person responsible for the electrical system.

24. Non-operational workers who are authorized to personally inspect high-voltage electrical equipment must hold at least an Intermediate Category (IC) of electrical safety, and for low-voltage equipment – a Basic Category (BC).

25. Work supervisors are appointed from among electrotechnical workers who have a thorough understanding of the installation, operation, occupational safety and health rules and instructions for electrical equipment, as well as the schematics, structures, and other characteristics of the equipment in use. They must also be capable of ensuring workers' safety and health based on the scope of work being performed.

26. The work supervisor organizes operational tasks related to electrical equipment. They are authorized to issue instructions and assignments for work on electrical equipment, possess personal keys to the equipment, and personally conduct inspections. The work supervisor may also perform the functions of a work executor, supervisor, or crew member.

The work supervisor is responsible for the adequacy and suitability of the organizational and technical measures specified in the instruction or assignment to ensure safe work, for appointing responsible persons and crew members, for verifying their qualifications, and for determining the appropriate crew size.

In the case of legal entities working on electrical equipment not owned or entrusted to them, the appointment of responsible persons and crew members, their qualifications, and crew size is the responsibility of company managers or their authorized representatives, who must submit a list of employees (work requests) to the client.

When working under instructions or assignments, the work supervisor must instruct the work executor and the supervisor. This instruction must be recorded in the Instruction and Assignment Registration Journal (Annex 10 of the Rules).

27. In low-voltage electrical equipment, the functions of a work supervisor may be performed by an electrotechnical worker holding at least an Intermediate Category (IC). In high-voltage electrical equipment, the functions of a work supervisor may only be performed by an electrotechnical worker holding a High Category (HC).

28. The rights and duties of work supervisors, work executors, supervisors, and crew members are defined by the Rules. Electrotechnical workers certified for work on lower voltage equipment are permitted to work in rooms and/or areas where other operational higher voltage electrical equipment is present, provided they maintain safe distances from live parts as specified in Annexes 3 and 4 of the Rules. The employer or their authorized person may further specify the rights and duties of work supervisors, work executors, supervisors, and crew members.

29. Work executors are appointed from among electrotechnical workers who have a thorough understanding of the installation, operation, occupational safety and health rules and instructions for electrical equipment, as well as the schematics, structures, and other characteristics of the

equipment in use. A work executor must be capable of ensuring workers' safety and health and must hold at least an **Intermediate Category (IC)** of electrical safety.

30. Work executors perform the following functions:

- **30.1.** Organize the execution of work according to the instructions or assignments of the work supervisor;
- **30.2.** Prepare the workplace and authorize work to begin;
- **30.3.** Accept the workplace and obtain permission to work if the workplace was prepared by others;
- **30.4.** Supervise crew members working under instructions or assignments;
- **30.5.** If holding the rights of an operational repair worker, perform operational switching.

31. Before allowing the crew to begin work, the work executor must ensure that the workplace is properly prepared and must instruct the crew members to work under the instruction.

32. The work executor is responsible for:

- **32.1.** Proper implementation of the measures listed in the instruction or assignment;
- **32.2.** Proper and sufficient preparation of the workplace and its restoration after work is completed;
- **32.3.** The appropriateness of the permission for the crew to work, its documentation, and the quality of targeted instruction;
- **32.4.** Compliance with occupational safety and health requirements by crew members, the condition of tools and equipment, and the preservation of grounding devices, barriers, and warning signs at the workplace until the work is completed.

33. Instructions from the work supervisor are mandatory for the work executor, provided they do not conflict with the Rules or other occupational safety and health regulations. If the work executor observes violations of legal or regulatory acts related to occupational safety and health, they must stop the work and inform the work supervisor. It is prohibited for the work executor to leave the crew working at the site without supervision.

34. The **supervisor** is an electrotechnical worker assigned to oversee non-electrotechnical personnel working on electrical equipment or within its protection zones.

35. The functions of a **supervisor** are the same as those of a work executor, with the following exceptions:

- **35.1.** While supervising workers, the supervisor is prohibited from performing any other work;
- **35.2.** It is forbidden to leave workers unsupervised, even for a short time;

- **35.3.** The supervisor is only responsible for protecting supervised workers from approaching live parts closer than the distances specified in Annexes 3 and 4 of the Rules;
- **35.4.** The appointment of a supervisor must be formalized through an instruction.

36. A supervisor must hold at least an **Intermediate Category (IC)** of electrical safety.

37. Crew members are appointed from among electrotechnical workers who possess the necessary theoretical knowledge and practical skills. They must be familiar with occupational safety and health rules, instructions, and other requirements relevant to the scope of work being performed. Crew members must follow all instructions given by the work executor or supervisor, provided those instructions do not conflict with the Rules or other occupational safety and health regulations. If crew members observe violations of safety requirements or are unable to ensure compliance with safety standards, they must stop working and inform the work executor.

38. A trainee is a person appointed by the employer or their authorized representative to deepen their professional knowledge and its application in practice until they are certified and permitted to work independently with electrical equipment. The trainee works under the supervision of a qualified electrotechnical worker holding either an **Intermediate Category (IC)** or **High Category (HC)** of electrical safety.

V. MEASURES AND METHODS OF PROTECTION AGAINST ELECTRICAL EFFECTS

39. When organizing and performing work on electrical equipment, organizational and technical measures must be implemented to protect individuals from the effects of electric current, static electricity, electromagnetic fields, and electric arcs.

40. Technical measures include actions that ensure occupational safety and health at the workplace, depending on the work category. These measures may include:

- Disconnection to prevent contact with live parts;
- Grounding of disconnected conductive parts;
- Placement of warning signs;
- Fencing off the work area to prevent workers from approaching live parts at unsafe distances and to restrict access by unauthorized persons;
- Use of insulated tools and equipment;
- Protection against electric fields.

41. The following methods are applied to ensure the safety and health of workers against electrical hazards:

- **41.1.** Use of protective equipment;
- **41.2.** Use of reduced voltage. Reduced voltage may only be supplied through dedicated transformers or other devices; the use of autotransformers for this purpose is prohibited;

- **41.3.** Use of isolated transformers with a secondary winding electrically separated from the primary winding;
- **41.4.** Use of equipment with double or reinforced insulation;
- **41.5.** Compliance with the rated parameters specified for the equipment;
- **41.6.** Use of audible and visual signaling;
- **41.7.** Use of fast-acting switching devices with residual current protection;
- **41.8.** Use of signal colors and electrical hazard warning signs;
- **41.9.** Potential equalization;
- **41.10.** Voltage shutdown, equipment disconnection, and verification of voltage absence;
- **41.11.** Use of shielding kits;
- **41.12.** Grounding or neutral grounding of conductive enclosures of electrical equipment.

42. Other methods of protection against electrical hazards are also permitted if they are defined and approved by Lithuanian standards, international standards of the **IEC** (International Electrotechnical Commission), **CENELEC** (European Committee for Electrotechnical Standardization), or comply with other occupational safety and health regulations valid in the Republic of Lithuania.

V. ORGANIZATIONAL MEASURES

44. The following organizational measures are applied to ensure the safety and health of workers:

- **44.1.** Appointment of persons responsible for worker safety, in accordance with company documentation;
- **44.2.** Selection and appointment of individuals responsible for the safe execution of work;
- **44.3.** Formalization of work through instructions, assignments, or technical maintenance procedures;
- **44.4.** Organization of work based on contracts with other natural or legal persons;
- **44.5.** Authorization to implement technical measures, prepare the workplace, and allow work to begin.

44. The following organizational measures are applied to ensure the safety and health of workers:

- **44.6.** Authorization to begin work;
- **44.7.** Supervision of non-electrotechnical work performed on electrical equipment;
- **44.8.** Transfer to another workplace;
- **44.9.** Formalization of work breaks and work completion.

45. Work on operational electrical equipment, except in cases specified in point 451 of the Rules, may be performed:

- **45.1.** According to the work supervisor's instruction;
- **45.2.** According to the work supervisor's assignment;
- **45.3.** Under technical maintenance procedures.

45¹. In the event of an unforeseen incident at energy facilities or equipment, which either meets or is expected to develop into an incident that meets the criteria for classification as an accident or operational disruption as defined in the *Regulations for the Investigation and Accounting of Accidents or Disruptions at Energy Facilities and Equipment*, approved by the Order of the Minister of Energy of the Republic of Lithuania No. 1-80 of March 5, 2010, operational switching of electrical equipment is carried out based on commands issued by the on-duty dispatcher. Work related to incident resolution is performed according to assignments given by the on-duty dispatcher, following the procedure outlined in the *Instructions for Handling Accidents and Technological Disruptions*, approved by the employer or their authorized representative. The decision on whether an incident at energy facilities or equipment meets the criteria for classification as an accident or operational disruption, or is expected to develop into such an incident, is made according to the procedure established by the employer or their authorized representative.

46. The employer or their authorized representative, considering local conditions and criteria, prepares lists of work to be performed under instructions and assignments.

47. When work is carried out under contracts, the boundaries of responsibility for occupational safety between the contracting parties are defined in the respective agreements.

I. WORK EXECUTION BASED ON INSTRUCTIONS

48. Work Order – a written task issued by the work supervisor to ensure safe working conditions when performing work of a specified scope. It defines the workplace, the start and end time of the work, the conditions for safe execution, the composition of the team, and the persons responsible for the safety and health of the workers. The work order is issued in two copies using a prescribed form (Annex 9 of the Rules). At the discretion of the employer or their authorized representative, this form may be expanded or supplemented with tables, texts, and additional requirements, provided they do not reduce worker safety. The work order may also be issued in a single copy, provided that a signed copy by both the issuer and the recipient is preserved in electronic media. When the work order is transmitted via communication means, one form is filled out by the issuer and the other by the recipient, or the issued work order is sent via fax or email.

49. Lists of work performed under work orders shall be compiled based on the following criteria:

49.1. Category I work, excluding work performed on control, automation, communication equipment, relay protection circuits, secondary circuits of electricity metering, current circuits in electricity metering cabinets with direct connection meters (on incoming and outgoing cables/wires installed in cabinets, electrical devices, and automatic switches/breakers contacts), and electrical installations where high-voltage equipment is located behind permanent barriers or farther than

specified in Annexes 3 and 4 of the Rules, as well as work performed by on-duty operational personnel;

49.2. Category II work in high-voltage electrical installations and work in looped low-voltage networks, excluding work performed by on-duty operational personnel;

49.3. Work in explosive environments;

49.4. Work for which a supervising person is appointed to ensure safety;

49.5. Testing with elevated voltage in non-stationary laboratories;

49.6. Work on low-voltage double-circuit overhead lines, or where such lines intersect with live overhead lines, or are located within an induced voltage zone.

50. A work order, including its extension, may be issued for a period not exceeding 30 calendar days. Once the completion of the work is formalized, the work order shall be retained for 30 calendar days.

51. Work under a work order must be performed by at least two workers: either a work performer not lower than **IC** level and a **BC** team member, or a supervisor not lower than **IC** level and a team member.

52. The composition of the team may be changed only by the person who issued the work order or by a person authorized to issue work orders for work on the respective electrical installations. The change must be formalized by the work performer with the permission of the work supervisor. A worker added to the team may begin work only after receiving a targeted instruction and signing for it prior to the start of work.

53. A work order is considered valid when the permission to prepare the workplace and to begin work under the order is formalized in the second table of the work order.

54. A work order becomes invalid:

- **54.1.** when its validity period expires;
- **54.2.** when the working conditions change, except for adjustment work requiring voltage to be applied to control circuits or air to be supplied to a circuit breaker;
- **54.3.** when the work performer is replaced;
- **54.4.** when voltage must be applied to the equipment before all tasks listed in the work order are completed;
- **54.5.** for the duration of work suspension by personnel responsible for occupational safety and health.

55. A single work order may be issued to a team to sequentially perform the same type of work in multiple transformer substations, distribution points, transformer stations (facilities), or in multiple connection points and overhead or overhead cable lines within one facility, provided that all workplaces are prepared before the start of work, and the section of the work order titled "Workplaces prepared. Voltage remains on" immediately lists all electrical installations and parts

where voltage remains on. When transitioning between workplaces on the same overhead line, which is disconnected and grounded at the disconnection points, the team is allowed to move portable grounding devices from one workplace to another. The placement and removal of grounding devices at each workplace must be recorded in the “Other requirements” section of the work order. Transitions between workplaces must be formalized in Table 4 of the work order, and voltage may only be applied after all work at all workplaces is fully completed.

Multiple work orders may be issued to a work performer, but only one work order may be active at a time.

56. Permissions to carry out technical measures, prepare the workplace, and allow work to be performed under assignments and work orders in electrical installations operated or managed by operational personnel are granted by operational personnel. In all other electrical installations, such permissions are granted by the work supervisor who issued the assignment or work order, or by another person authorized by the employer. In electrical installations where on-duty operational personnel are present, permissions to carry out technical measures, prepare the workplace, and allow work are granted by operational personnel who have received permission from the operational personnel responsible for managing or operating those installations.

For **Category I and III work**, permissions to prepare the workplace and allow work under assignments and work orders are granted by the work supervisor who issued the assignment or work order and must be recorded in the work order registration and assignment documentation log. The work supervisor must inform the operational personnel who’s managed or operated electrical installations are involved in the work.

VI. TECHNICAL MEASURES

72. When performing work on live electrical installations under work orders and assignments, the technical measures related to disconnection and grounding of equipment necessary to ensure safe working conditions, shall be defined when issuing the work order or assignment. When work is carried out as part of technical maintenance procedures, the technical measures necessary to ensure employee safety and health shall be specified in occupational safety and health instructions. Additional technical measures may be defined in the technological documentation for work execution or at the discretion of the worker.

73. Technical measures to ensure employee safety and health shall be selected and defined based on the category of work being performed on live electrical installations.

I. CATEGORY I WORK PERFORMED ON OR NEAR LIVE PARTS

74. Category I work includes tasks where live parts are touched by hands, other body parts, tools, or work equipment, or where the worker approaches live parts closer than the distances specified in Annexes 3 and 4.

75. Before performing work on or near live parts, the following technical measures must be implemented:

75.1. In low-voltage electrical installations, when the worker is insulated from live current-carrying parts using insulated tools and protective equipment:

- **75.1.1.** If possible, voltage must be disconnected from all adjacent electrical installations or their parts. If disconnection is not possible, these parts must be covered with insulation rated for the appropriate voltage;
- **75.1.2.** Within the work area, only the live parts being worked on may remain uncovered. These parts must be located directly in front of the worker or, in exceptional cases, in front and to one side;
- **75.1.3.** The uninsulated parts of tools and equipment used must not be equal to or greater than the distance between parts with different potentials (e.g., between different towers or phases, or between live parts and grounded parts);
- **75.1.4.** The worker must use face protection;
- **75.1.5.** Shunting of the current-carrying parts being repaired must be performed using special equipment.

75.2. In high-voltage electrical installations, when the worker is insulated from live current-carrying parts by maintaining safe distances and using insulating equipment:

- **75.2.1.** Only insulating equipment specifically designed and tested according to the manufacturer's instructions may be used;
- **75.2.2.** The worker must use additional protective equipment (dielectric gloves) and face protection when working with insulating tools.

75.3. When the worker is insulated from the ground and grounded parts:

- **75.3.1.** The worker must be safely distanced and insulated from the ground and grounded or neutralized structures;
- **75.3.2.** During work, it must be ensured that workers do not approach adjacent current-carrying parts with different potentials closer than the safe distances;
- **75.3.3.** Before starting work from an insulating platform near live parts, the potential of the platform, shielding suit, and live parts must be equalized using a special connector;
- **75.3.4.** When working from an insulating platform with conductor potential, it is prohibited to touch insulator strings and fittings with different potentials, or to pass tools and devices to/from workers not on the platform;
- **75.3.5.** Connecting or disconnecting elements of the repaired phase with different potentials (e.g., conductors and insulator strings) must be done using eye and face protection and wearing dielectric gloves;
- **75.3.6.** When working in electrical installations of 330 kV and above, shielding suits protecting against electromagnetic field exposure must be used.

76. When working near live parts, it must be ensured during the work that workers do not come into contact with adjacent live parts.

77. Measurements must be performed using measuring rods, clamp meters, and other devices specifically designed for this purpose.

78. It is prohibited to approach closer than 1 meter to a lightning protection cable.

It is prohibited to work on an energized power line under unfavorable weather conditions (such as fog, rain, snow, insufficient lighting, or strong wind). The decision on whether work may be performed under the conditions specified in this point is made by the work performer.

II. CATEGORY II

WORK PERFORMED WITH EQUIPMENT DISCONNECTED

79. Category II work includes tasks performed on de-energized electrical installations, where the worker does not approach live parts with body parts, tools, or work equipment closer than the distances specified in Annexes 3 and 4.

80. Before starting work with the voltage disconnected the following technical measures must be implemented in the specified order:

80.1. Disconnect the voltage;

80.2. Disconnect the equipment. If it is technically impossible to disconnect the equipment, voltage disconnection alone may be sufficient;

80.3. Take measures to prevent accidental or erroneous switching of switching devices;

80.4. Post signs prohibiting voltage activation;

80.5. Verify the absence of voltage;

80.6. Ground the equipment according to the established procedure and post “GROUNDED” signs;

80.7. Prepare the workplace (implement the measures specified in Point 93 of the Rules).

81. The sign “Do not switch on! Work in progress” must be placed on electrical devices used to disconnect or isolate voltage, on actuator handles, or on control elements of electrical devices.

82. Voltage must be checked using specially designed, tested, and verified voltage indicators.

83. A tested indicator is one that has been tested according to the manufacturer's procedure and is within its valid testing or usage period.

84. A verified indicator is one whose functionality has been checked before verifying the absence of voltage in a disconnected installation—either using a special device, the method specified by the manufacturer, or on live electrical installations.

85. When using a voltage indicator, the safety measures specified in the manufacturer's instructions must be followed.

86. When verifying the absence of voltage in disconnected electrical installations using other tools or methods, the procedures specified by the equipment manufacturer must be followed.

87. Grounding of equipment is defined as the connection of the disconnected phase current-carrying parts to the grounding device via an electrical circuit.

88. The current-carrying parts of electrical equipment are grounded using grounding devices, short-circuities, or specially designed stationary grounding systems.

89. Portable grounding is performed by connecting one end of the grounding device to the grounding system and, immediately after verifying the absence of voltage, connecting the other end(s) to the current-carrying parts of the equipment using special insulating rods. The grounding device must be removed in reverse order. In high-voltage installations, portable grounding using special insulating rods must be performed while wearing dielectric gloves. This task must be carried out by two persons—one IC and one BC. Removal is performed by one IC person. In low-voltage installations, portable grounding devices with insulating rods may be installed and removed by one IC person. If grounding is performed using stationary grounding blades in overhead lines or open switchyards, voltage verification is not required. When manually operating switching device actuators, dielectric gloves must be worn.

90. Connection to “ground” is defined as the connection of one end of a portable grounding device to designated grounding points of electrical installations or to other grounded structures or devices.

91. The sign “GROUNDED” must be placed on the handles of actuators of engaged stationary grounding devices in electrical installations (except when grounding blades are engaged remotely).

92. It is prohibited to ground disconnected electrical installations using methods or devices other than those specified in Points 88–91.

93. The following measures must be applied to prepare the workplace:

93.1. Verification of absence of voltage;

93.2. Grounding according to the established procedure;

93.3. Fencing off the workplace;

93.4. Marking the boundaries of the workplace and other hazardous zones with electrical hazard warning signs “STOP! VOHLTAGE”;

93.5. Ensuring safe distances between workers and live parts as specified in Annexes 3 and 4 of the Rules;

93.6. In low-voltage installations, where portable grounding devices cannot be applied, insulating covers, shields, screens (barriers), or locking mechanisms must be placed on all sides of the workplace from which voltage may appear—such as actuators, electrical cabinets, chambers, device enclosures, etc.—or the power supply cables (busbars) must be disconnected;

93.7. Marking the workplace with permissive signs;

93.8. In addition to these measures, other safety measures defined by occupational safety regulations may be used to mark workplace boundaries and hazardous zones. However,

these do not replace the signs specified in the Rules. Other visual information tools may only be used as supplementary to the primary ones.

94. When working on relay protection, automation, control, auxiliary power, and electrical measurement circuits, as well as in internal electrical installations of administrative, domestic, industrial, residential premises, utility buildings, and warehouses—where grounding is not possible or would be dangerous—work may be performed without grounding, provided the following measures are implemented:

94.1. Disconnect the equipment from all sides where voltage may be applied. Disconnection must be done using a switching device with a visible break. If fuses are present, they must be removed (unscrewed). If the switching device does not have a visible break, the power supply cables (busbars) to the equipment being repaired must be disconnected from the switching device and insulated. Alternatively, the device must be switched off and, if technical means cannot prevent accidental switching, a trained person must be assigned to prevent the device from being switched on.

94.2. Measures must be taken to prevent accidental voltage activation at the workplace (e.g., locking switching device actuators, locking cabinets or rooms containing switching devices, disconnecting control and power circuits of switching devices, separating contacts with insulating gaps or covers, etc.). Signs reading “DO NOT SWITCH ON! WORK IN PROGRESS” must be posted at disconnection points.

94.3. At the workplace, verify the absence of voltage on current-carrying parts.

III. CATEGORY III WORK PERFORMED WITHOUT DISCONNECTING VOLTAGE, AT A DISTANCE FROM LIVE PARTS

95. Category III work includes tasks performed near energized electrical installations, during which the worker does not approach live parts with body parts, tools, or work equipment closer than the distances specified in Annexes 3 and 4.

96. When performing work on low- or medium-voltage electrical installations, the following technical measures may be used:

96.1. Insulating shields;

96.2. Insulating rods;

96.3. Insulating covers;

96.4. Insulating screens;

96.5. Barriers.

97. When performing work on high-voltage electrical installations, only barriers may be used.

98. When performing work not related to the operation of an overhead line, without disconnecting voltage in the line, and when there is a risk of electrical shock or electromagnetic field exposure to the personnel involved, supervision by electrical engineering personnel is required. During such

work, the requirements of occupational safety regulations, other normative acts, and the rules established by the organization operating the line must be followed.

99. When performing repair work within the protection zones of overhead lines or on the premises of transformer substations (except in cases where the work is carried out in an area fenced off from live electrical installations and where it is not possible for machinery to approach live current-carrying parts closer than the permissible distances specified in Annex 4 of the Rules), the operator of lifting cranes and self-propelled lifts used for lifting personnel must have competence in electrical safety. Such work may only be performed under a work order. When issuing the work order, the work supervisor must instruct the operators of lifting cranes, self-propelled lifts for lifting personnel, and other machinery on electrical safety requirements.

100. When operating machinery and equipment in these zones, it is permitted to approach live current-carrying parts no closer than the minimum distances specified in Annex 4.

101. When working in these zones without disconnecting voltage, the conductive bodies of machines and mechanisms on pneumatic wheels must be grounded using a grounding device with a cross-section appropriate for the equipment.

IV. CLEAN-UP OF WORKPLACES WHERE TECHNICAL MEASURES WERE APPLIED

102. After the work is completed, the workplace must be cleaned up in the following order:

102.1. Workers (the team) are withdrawn;

102.2. Completion of work is recorded in Table 4 of the work order (Annex 9), if the work was performed under a work order;

102.3. Temporary barriers and protective covers are removed;

102.4. Barriers marking the boundaries of the workplace and hazardous zones are removed;

102.5. The ends of portable grounding devices are disconnected from the current-carrying parts of the electrical installation;

102.6. The grounding end of the portable grounding device is disconnected from “ground”;

102.7. “GROUNDED” signs are removed.

103. After the workplace has been cleaned up, the full completion of work must be formalized according to the established procedure. Before performing the switching operation, the sign “DO NOT SWITCH ON! WORK IN PROGRESS” must be removed. This sign may only be removed by the person whose name is written on the sign’s label, or by a replacement authorized person.

V. SWITCHING ON THE EQUIPMENT

104. A disconnected electrical installation may be switched on only after the workplace has been cleaned up in accordance with the requirements of Point 102.

105. Permission to switch on is granted by the qualified personnel responsible for operating the electrical installation, or by the person who issued the work order, provided that the switching operation is recorded in the “Other instructions” section of the work order.

VII. MAINTENANCE OF SPECIFIC ELECTRICAL INSTALLATIONS

I. SUBSTATIONS, TRANSFORMER STATIONS, SWITCHYARDS, AND SWITCHING DEVICES

106. When working on electrical installations in transformer substations, switchyards, and transformer stations, grounding devices must be connected to all phases of the disconnected (switched-off) equipment from all sides where voltage may be applied, except for disconnected busbars, which may be grounded at a single point.

If the grounding devices are separated from the current-carrying parts being worked on by disconnected circuit breakers, disconnectors, isolators, power disconnectors, removed fuses, dismantled busbars or cables, then an additional portable grounding device must be connected at the worksite to the current-carrying parts only if induced voltage may be present. In such cases, the installed portable and additional grounding devices must be visible from the worksite.

107. Before allowing work on remotely operated switching devices, the following must be ensured:

107.1. Disconnect all energized circuits (control, signaling, electrical heating, actuator power supply, etc.);

107.2. In weight-operated actuators, the weight must be lowered; in spring-operated actuators, the spring must be released;

107.3. Close and lock the valves of circuit breaker tanks or pneumatic actuator pipelines and release the air. Drain plugs and valves must be left open;

107.4. Attach signs reading “DO NOT SWITCH ON! WORK IN PROGRESS” to remote control keys and “DO NOT OPEN! WORK IN PROGRESS” to closed valves.

108. If, during repair work, personnel need to enter air receivers (reservoirs), the following must be ensured before work begins:

108.1. Close all air pipeline valves supplying air, lock them, and hang signs on the valves reading “DO NOT OPEN! WORK IN PROGRESS”;

108.2. Release the compressed air from the receivers and leave the drain plug or valve open;

108.3. Disconnect the air supply pipeline from the air receiver and install blind flanges.

Drain plugs or valves may only be closed after all bolts and nuts securing the access cover have been tightened.

109. Checking an air circuit breaker under operating pressure is permitted only during testing and adjustment work.

It is prohibited to climb onto a disconnected air circuit breaker with a pressurized isolator if it is under operating pressure.

110. Before climbing onto an air circuit breaker to perform testing and adjustment work, the following must be ensured:

110.1. Disconnect control circuits;

110.2. Block the local control button and start valves (e.g., disconnect air tubes, lock cabinets, etc.), or assign a trained team member to allow operation of the breaker only to the worker designated by the work performer;

110.3. Stop all work in control and distribution cabinets.

111. It is prohibited for personnel to be near the air circuit breaker during switching on/off, testing, adjustment, or inspection.

112. When working in switchgear compartments on a withdrawn trolley, the curtains of the compartment where voltage remains must be locked (if possible) and marked with the sign “STOP! VOHLTAGE”.

113. When working on outgoing overhead or cable lines from switchgear compartments, to ensure visible disconnection, the following must be done:

113.1. Switch off the circuit breaker;

113.2. Withdraw the circuit breaker to the maintenance or testing position;

113.3. Lock the curtains or doors (if possible) and hang the sign “DO NOT SWITCH ON! WORK IN PROGRESS”;

113.4. If grounding blades are interlocked with the breaker trolley, the trolley may be placed in the control position after the grounding blades are engaged.

114. Fuses must be removed and installed only after disconnecting voltage. In circuits without switching devices before the fuses, it is permitted to remove and install fuses under voltage, but only when there is no load.

Voltage transformer fuses and low-voltage plug-type fuses may be removed and installed under voltage and load. In low-voltage installations, fuses may be replaced under voltage and load if shunting and special insulating covers are used.

115. When removing or installing fuses under voltage, the following protective equipment must be used:

115.1. In high-voltage installations – insulating pliers (rod), and head, eye, face, and hand protection (helmet, face shield, dielectric gloves);

115.2. In low-voltage installations – insulating pliers or other fuse replacement tools, along with head, eye, face, and hand protection (helmet, face shield, dielectric gloves).

116. Electrical installations must always be locked. Keys to electrical installations must be accounted for by on-duty or other designated personnel. The procedure is determined by the person responsible for the company’s electrical system.

117. Compressors and pressure vessels must be operated according to approved occupational safety and health instructions, prepared based on these Rules and other normative acts.

118. In all cases where transformer substations, switchyards, or transformer stations are operated by employees of multiple companies, mutual relations regulations for electrical engineering personnel must be prepared and approved between the employers for performing work and operational supervision of electrical installations.

II. OVERHEAD LINES

119. To ensure employee safety and health when working on overhead lines (OHL), it is necessary to **disconnect (switch off)** and **ground** the lines at the disconnection points from which voltage can be applied (including the possibility of voltage due to back feed transformation), or to ground the line **between the disconnection (switch-off) point and the work site**. Portable grounding devices at the disconnection (switch-off) points must be connected to a grounding system.

120. At the work site, additional grounding of the overhead line must be carried out as follows:

120.1. When working on an overhead line that:

- has a **single power source**,
- has **no crossings** with other energized overhead lines,
- and **no induced voltage** is present; it is sufficient to ground the line from the power supply side no further than 3 km away. If the grounding device is visually visible from the work site, additional grounding at the work site is not required.

120.2. When working on an overhead line with **two or more power sources**, the work site must be grounded **from all sides**, ensuring that the distance between grounding devices at the work site does not exceed **3 km**. If a grounding device at the disconnection point is visibly seen from the work site, additional grounding from that side is not required.

120.3. When working at an intersection of overhead lines, grounding must be applied at the intersection.

120.4. When working at the intersection of overhead lines and open switchyard busbars, grounding must be applied at the location (tower) where the work is being performed. If wires, cables, their insulators, or fittings located below energized conductors are being untied or replaced at the intersection, grounding must be applied on both sides of the intersection. Insulating ropes must be placed across the replaced wires or cables from both sides of the intersection, with their ends secured to anchors or structures. If the work is carried out on the upper intersecting line, the lower line must be disconnected and grounded on both sides of the intersection, or the work must be performed according to a special work organization plan approved by the employer or an authorized person.

120.5. If a conductor needs to be cut during work or has broken, the overhead line must be grounded on both sides of the break. If induced voltage is still present in the line, the two grounding devices must be connected together to equalize potential.

120.6. When working on a single tower only, and the continuity of conductors is not interrupted, it is sufficient to ground at the working tower or at the adjacent tower, regardless of how many power sources the line has.

120.7. For overhead lines of 110 kV and above, it is not necessary to ground all conductors at the work site. It is sufficient to ground only the conductor being worked on, provided that the distances specified in Annex 3 are maintained from other conductors, and all phases are grounded at the disconnection points.

120.8. If the overhead line is in a zone of induced voltage, grounding devices must be installed at each work site (tower). Additionally, mechanisms, cranes, and personnel lifting platforms used must be grounded. The baskets of lifting platforms must be connected to a portable grounding device of the same cross-section as the grounding device used for the overhead line conductors, to equalize potentials.

120.9. If the induced voltage in the overhead line exceeds 50 V, work may be performed only with grounding at the work site. In this case, grounding at disconnection points is prohibited.

121. When measuring the grounding resistance of the towers, the lightning protection cable's grounding conductor must be disconnected and reconnected only after grounding the cable. Bolted clamps connecting the grounding conductor to the tower's grounding contour may be disconnected and reconnected only after grounding the conductor.

122. During overhead line inspection, climbing to the towers or structures is prohibited.

123. Climbing to the tower and working on it is allowed only after ensuring that the tower is sufficiently strong and free of structures that obstruct safe climbing. When climbing a reinforced concrete pole, the body safety harness rope must be attached to the pole immediately. After climbing 20–30 cm, the climbing equipment, safety harness, rope, and locking mechanisms must be tested. If everything is in good condition, the worker may continue climbing to the working position. If the rope needs to be moved over metal structures, brackets, crossarms, or other obstacles, two ropes must be used, attaching the second one before detaching the first. A worker on the tower must be secured with a fall arrest system (harness). When working with self-propelled personnel lifts, the worker must be secured with a harness rope and wear a protective helmet.

If climbing with climbing spikes or ladders is unsafe (e.g., the concrete tower is not strong enough or obstructed by mounted structures), the concrete tower must be reinforced or a personnel lifting mechanism must be used.

124. When climbing metal towers or substation portals where the distance between crossbars is no more than 0.6 m and the angle is no more than 30 degrees, or where steps are installed, the following safety measures must be followed:

124.1. Climb to the tower or portal from the windward side.

124.2. Use a harness with two lanyards, so that one lanyard is always attached during climbing.

124.3. Wear non-slip footwear suitable for metal structures and gloves.

124.4. Do not carry equipment or tools while climbing (they must be lifted to the work site using a rope afterward).

124.5. Do not start work until all workers who will be working on the tower or portal have climbed up.

124.6. Do not climb iced-over towers or portals.

If the distance between crossbars exceeds 0.6 m, or the angle is greater than 30 degrees, and no steps are installed, a self-propelled personnel lift must be used to access the metal towers or portals.

125. In multi-circuit overhead lines with horizontally arranged circuits, after disconnecting one circuit, work is allowed only on the side of the disconnected circuit. Crossing over crossarms that support energized circuits is prohibited.

126. In multi-circuit overhead lines with vertically arranged circuits, work on a disconnected circuit is allowed only if it is below the energized circuits. Climbing the tower is allowed only on the side of the disconnected circuit. **Replacing or adjusting conductors in the disconnected circuit is prohibited.**

127. In multi-circuit overhead lines of 35 kV and above, when working on a disconnected circuit, red flags must be hung on the concrete pole stem 2–3 meters high on the side of the energized circuits.

128. When working on the towers, the distances specified in Annexes 3 and 4 between workers/mechanisms and energized conductors must be maintained. If these distances cannot be maintained, the conductors must be disconnected and grounded.

129. On angle tower with pin-type insulators, climbing and working must be done from the outer side of the angle.

130. In low-voltage overhead lines, when tensioning or replacing conductors mounted on shared towers with other overhead lines, all lines must be disconnected and grounded either at the work site or on both sides of the work section.

131. Towers that may experience unilateral tension during work, which they are not designed to withstand, must be reinforced before starting work.

132. The methods for dismantling and installing towers, as well as the need and method of reinforcement, are determined by the work supervisor, based on technological cards, design documentation, occupational safety regulations, and other normative documents.

133. When working on suspension or tension insulator strings, the harness lanyard must be attached to the crossarm. If the lanyard is too short, a fall arrester with a retractable rope (safety reel) must be used.

134. When lifting or lowering conductors, cables, or insulators, it is prohibited to stand on the crossarm or tower beneath the crossarms to which the load is being lifted.

135. Before starting work on insulator strings using a measuring rod, a visual inspection must be carried out to ensure the condition of the suspended insulators and that all pins and locks in the fittings are present.

136. It is prohibited to approach closer than 8 meters to a broken conductor or a grounded tower (portal) in overhead lines and open switchyards, and closer than 4 meters in enclosed switchyards.

137. When working in areas where overhead lines intersect with transportation routes (railways, navigable rivers, canals), and temporary traffic stoppage is required, the work supervisor must summon a representative of the transportation route to the work site. This representative must temporarily stop traffic or warn the crew about approaching vehicles. When allowing vehicles to pass, conductors must be lifted to a safe height.

138. When working in areas where overhead lines intersect or approach highways and roads, and traffic may be disrupted, a permit from the road police must be obtained.

139. When clearing or widening overhead line corridors, and there is a risk that branches or trees may approach conductors closer than the permissible distances specified in Annex 4, work must be carried out under a work order or instruction, or the overhead line must be disconnected and a permit issued to work in the protection zone. The person issuing the work order or instruction must define measures to ensure that branches or trees do not approach conductors closer than the permissible distances specified in Annex 4.

140. When a thunderstorm is approaching, all work must be stopped on overhead lines, in open switchyards, and in enclosed switchyards at overhead line terminals and line disconnectors.

141. In difficult terrain or unfavorable weather conditions, overhead lines must be inspected by two BC employees. In other cases, one BC employee may perform the inspection.

During inspection, walking under conductors should be avoided.

142. Employees searching for faults in overhead lines must have warning signs, and if there is a danger to others, the hazardous area must be fenced off and marked with signs.

XIII. PROTECTIVE MEASURES AGAINST ELECTRICAL HAZARDS (PROTECTIVE EQUIPMENT)

232. Protective equipment is intended to safeguard workers operating in electrical installations from the effects of electric current, electrostatic and electromagnetic fields, electric arc and its combustion products, falls from height, and similar hazards.

233. The following are classified as protective equipment:

233.1. Insulating operating rods, insulating pliers, voltage indicators for verifying absence of voltage, and voltage indicators for phase identification.

233.2. Insulating measuring sticks, current measuring pliers.

233.3. Insulating ladders, insulating platforms, insulating pull sticks, grips, and tools with insulated handles.

233.4. Rubber dielectric gloves, boots, overshoes, mats, and insulating stands.

233.5. Portable grounding devices.

233.6. Shielding kits.

233.7. Temporary barriers, electrical hazard warning signs, insulating covers and caps.

233.8. Safety glasses and face shields, canvas or other material gloves, gas masks, respirators, safety harnesses, safety ropes, and protective helmets.

234. Electrical protective equipment is divided into:

234.1. Primary protective equipment.

234.2. Additional protective equipment.

Primary protective equipment refers to items whose insulation reliably withstands the operating voltage of electrical installations, and which are permitted for direct contact with energized parts.

Additional protective equipment refers to items used in conjunction with primary protective equipment to provide extra protection against touch voltage, step voltage, electrostatic and electromagnetic fields, and electric arc and its combustion products. It is prohibited to use additional protective equipment for direct contact with energized parts.

235. The following are classified as **primary protective equipment** used in **low-voltage electrical installations**:

235.1. Insulating rods.

235.2. Insulating and measuring pliers.

235.3. Voltage indicators, multimeters.

235.4. Dielectric gloves.

235.5. Tools with insulated handles.

235.6. Cable sheaths, insulator covers, insulating tapes designed for work in low-voltage installations.

236. The following are classified as **additional protective equipment** used in **low-voltage electrical installations**:

236.1. Dielectric overshoes.

236.2. Dielectric mats.

236.3. Insulating stands.

236.4. Portable grounding devices.

236.5. Temporary barriers, shields, and screens.

236.6. Safety glasses and face shields.

237. The following are classified as **primary protective equipment** used in **high-voltage electrical installations**:

237.1. Insulating operating and measuring rods.

237.2. Insulating and measuring pliers.

237.3. Voltage indicators.

237.4. Insulating equipment and devices used for maintenance work, such as insulating ladders, insulating platforms, insulating pull sticks, insulator string grips, insulating sticks for attaching clamps, insulating parts of telescopic towers, etc.

238. The following are classified as **additional protective equipment** used in **high-voltage electrical installations**:

- 238.1.** Dielectric gloves.
- 238.2.** Dielectric boots.
- 238.3.** Dielectric mats.
- 238.4.** Insulating stands.
- 238.5.** Shielding kits.
- 238.6.** Portable grounding devices.
- 238.7.** Insulating covers and caps.
- 238.8.** Temporary barriers, shields, and screens.

239. Personal protective equipment must comply with the requirements of Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment, which repeals Council Directive 89/686/EEC (OJ 2016 L 81, p. 51), and must be used in accordance with the Regulations on the Provision of Personal Protective Equipment to Employees, approved by the Minister of Social Security and Labour of the Republic of Lithuania by Order No. A1-331 of 26 November 2007, titled “On the Approval of the Regulations on the Provision of Personal Protective Equipment to Employees”, as well as the manufacturer’s instructions for use.

Other protective equipment must comply with the requirements set by standards, and their use must follow the requirements of these Rules. If the technical documentation provided by the manufacturer specifies requirements that differ from those in the Rules, the manufacturer’s technical documentation must be followed.

240. The rated voltage of the specified electrical protective equipment must not be lower than the voltage of the installation in which it will be used.

241. Electrical protective equipment must be inspected and tested during operation in accordance with the procedures established by the manufacturer.

242. Before using any electrical protective equipment, each person must ensure that the equipment is not damaged and must use it according to its intended purpose.

243. Protective equipment must be used according to the purpose specified by the manufacturer. Using such equipment for other purposes is prohibited.

244. During work, it is prohibited to touch the insulating part of protective equipment above the limiting ring or tower.

245. If the insulating layer of protective equipment is damaged or any other defect is present, its use is prohibited. It is also prohibited to use electrical protective equipment in foggy or rainy conditions, unless such use is explicitly permitted by the manufacturer.

246. Persons located in rooms with operating electrical power installations (excluding control panels, relay protection panels, laboratories, and similar rooms), in open and enclosed switchyards, wells, chambers, ducts, and tunnels, construction sites, repair zones, and those working on overhead lines, must wear protective helmets.

Annex 3 – Safe Distances from People and Their Tools/Devices to Energized Parts

SAFE DISTANCES FROM PEOPLE AND THE TOOLS OR DEVICES THEY USE TO ENERGIZED PARTS

Rated voltage of the electrical equipment	Distance from people and the tools or devices they use, in meters
Above 50 V (up to 1000 V)	DO NOT TOUCH
Above 1000 V (up to 6 kV)	0,4
Above 6 kV (up to 35 kV)	0,6
Above 35 kV (up to 110 kV)	1,0
Above 110 kV (up to 330 kV)	2,5
Above 330 kV (up to 400 kV)	4,0

Annex 4 of the Rules for the Safe Operation of Electrical Equipment

SAFE DISTANCES FROM MECHANISMS AND LIFTING MACHINES, WHEN IN OPERATING OR TRANSPORT POSITION, TO ENERGIZED PARTS

Rated voltage of electrical equipment	Distance to energized parts from mechanisms and lifting machines in operating and transport position, including slings, load grips, and loads (in meters):
Up to 1000 V	0,5
Above 1000 V (up to 35 kV)	1,0
Above 35 kV (up to 110 kV)	1,5
Above 110 kV (up to 330 kV)	3,5
Above 330 kV (up to 400 kV)	6,0

Annex 8 of the Rules for the Safe Operation of Electrical Equipment

ELECTRICAL SAFETY SIGNS

I. WARNING SIGNS

1. Permanent sign warning of electric shock hazard:

“CAUTION, ELECTRIC SHOCK HAZARD”

- Triangle side length: 80, 160, or 280 mm

- Black border: 10 mm wide
- Black lightning bolt on yellow background
- Mounted on all energized electrical cabinets, panels (except inside switchyards), external doors of switchyards, gates, removable barriers, equipment covers, etc.
- In populated areas, mounted on high-voltage overhead line towers at 2.5–3 m height: every second pole if spans are <100 m, otherwise on every tower and road crossings (facing the road). Mounted on metal or wooden parts.

2. Permanent sign warning of electric shock hazard:

“CAUTION, ELECTRIC SHOCK HAZARD”

- Triangle side length: 80 or 160 mm
- Black border: 10 mm wide
- Black lightning bolt on white background or concrete surface (if painted)
- Same usage but painted only on reinforced concrete poles.

3. Permanent sign warning of life-threatening danger:

“STOP! DANGER TO LIFE”

- Minimum size: 210 × 297 mm
- Black border: 10 mm wide
- Black text on yellow background
- Triangle with human figure and lightning bolt
- Emergency contact number included
- Mounted on energized cabinets, panels, external doors, gates, barriers, etc.

3. Portable sign warning of electric shock hazard:

“STOP! VOHLTAGE”

- Minimum size: 280 × 210 mm
- Black text on white background
- Bright red border and arrow
- Used in electrical installations, mounted on temporary barriers, shields, and structures near work areas to restrict access.

4. Portable sign warning of high-voltage testing hazard:

“TESTING! DANGER TO LIFE”

- Minimum size: 280 × 210 mm
- Black text on white background

- Bright red border and arrow
- Mounted on equipment and barriers during high-voltage testing preparation.

5. Portable sign warning of danger when climbing structures:

“DO NOT CLIMB! DEADLY”

- Minimum size: 280 × 210 mm
- Black text on white background
- Bright red border and arrow
- Mounted on structures where climbing may bring a person close to energized parts.

II. PROHIBITION SIGNS

6. Portable sign prohibiting switching on equipment:

“DO NOT SWITCH ON! WORK IN PROGRESS”

- Size: 180 × 290 mm
- Red ring (150 mm diameter, 15 mm wide) with diagonal red stripe (12 mm wide)
- Inside: black schematic switch symbol
- Mounted on switch handles, low-voltage equipment, or fuse holders where switching could energize a work area.
- Removal of the sign or erasing the name/date before work is completed is strictly prohibited.

Smaller version:

- Size: 50 × 80 mm
- Ring diameter: 40 mm, width: 5 mm
- Stripe width: 4 mm
- Used on remote control keys and buttons.

7. Portable sign prohibiting opening of compressed air, gas, or liquid valves:

“DO NOT OPEN! WORK IN PROGRESS”

- Size: 180 × 290 mm
- Red ring with diagonal stripe
- Inside: water tap symbol
- Mounted on valves where opening could endanger workers or activate equipment.

III. PERMISSION SIGNS

8. Portable sign indicating work location:

“WORK HERE”

- Size: 250 × 250 mm
- White circle (200 mm diameter) on green background
- Black text
- Mounted at prepared work sites in electrical installations or fenced areas.

Smaller version:

- Size: 100 × 100 mm
- Same design
- Used on control panels during work.

9. Portable sign indicating safe climbing location:

“CLIMB HERE”

- Size: 250 × 250 mm
- White circle (200 mm diameter) on green background
- Black text
- Mounted on structures or fixed ladders leading to elevated work areas.

IV. REMINDER SIGNS

10. Portable sign reminding that grounding device is engaged:

- Size: 240 × 130 mm
- Black text on light blue background
- Mounted on handles of engaged grounding blades.

Smaller version:

- Size: 80 × 50 mm
- Same design
- Mounted on remote control keys and buttons that could energize grounded equipment or network sections.