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Electricity Regulatory Authority

Ministry of Energy and Natural Resources

Safety Code Regulation 2026



**Electricity Regulatory Authority
Ministry of Energy and Natural Resources**

Foreword

In accordance with Section 11.1(i) of the Electricity Act of Bhutan 2001, the Safety Code Regulation 2026 has been developed by the Electricity Regulatory Authority (ERA) to strengthen the framework for ensuring safety across Bhutan's electricity sector. Safety remains a fundamental pillar of the electricity sector, given the inherent risks associated with the generation, transmission, distribution, and use of electricity, and its critical importance in safeguarding lives, property, and infrastructure cannot be overstated. The regulation consolidates and updates the provisions of the Safety Regulation 2008 and the Safety Code (Amendment) 2021, taking into account the evolving nature of the sector, advancements in technology, and the growing complexity of electrical infrastructure.

The development of this regulation involved a comprehensive review of existing safety provisions, consideration of national priorities, stakeholder consultations, and assessment of emerging safety requirements. The review highlighted the need for a more integrated and responsive regulatory framework that provides greater clarity, strengthens safety governance, and addresses gaps arising from changes in electricity generation, distribution, and consumption patterns.

The Safety Code Regulation 2026 introduces enhanced safety requirements for modern technologies and infrastructure, including solar energy systems, wind energy systems, Battery Energy Storage Systems, Gas Insulated Substations, and Electric Vehicle charging facilities. It also establishes clearer responsibilities for customers and stakeholders in maintaining electrical installations, ensuring compliance with safety requirements, and promoting safe practices in the use of electrical equipment and systems.

This regulation serves as an important instrument for improving safety standards, strengthening compliance, and supporting the reliable and sustainable development of the electricity sector. By providing a comprehensive and consistent approach to safety management, it will contribute towards reducing electrical risks and protecting people, property, and infrastructure.

The Safety Code Regulation 2026 reflects ERA's commitment to strengthening safety governance through effective and responsive regulation. I sincerely appreciate the valuable contributions of all stakeholders and look forward to their continued support for its successful implementation. Upholding electrical safety and eliminating safety incidents in the workplace, however, cannot be achieved by regulation alone, it requires the strong and sustained engagement of all parties working together in the spirit of shared responsibility to build a safer electricity sector for all.


Chairperson

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In exercise of the power conferred by Section 11.1(i) of the Electricity Act of Bhutan 2001, the Electricity Regulatory Authority (ERA) hereby adopts the Safety Code Regulation 2026 as follows:

CHAPTER 1 PRELIMINARY

Title and Commencement

1. This Regulation is called the Safety Code Regulation 2026.
2. This Regulation comes into force from August 1, 2026.

Purpose

3. The purpose of this Regulation is to establish provisions and minimum electrical safety requirements for the design, construction, operation and maintenance of the Power System in a manner that is Electrically Safe.

Scope

4. This Regulation applies to:
 - (1) Licensee;
 - (2) Owner; and
 - (3) Customer.

Revocation

5. This Regulation revokes and supersedes the Safety Regulation 2008 and Safety Code (Amendment) 2021.

Dispensation

6. The Authority may, in particular cases, give dispensation, either in part or in full, from this Regulation or Licence Conditions issued by the Authority under the Electricity Act of Bhutan, 2001.
7. For the avoidance of doubt, this Regulation does not apply to the construction of civil works for power generation plants prior to the commencement of plant commissioning activities or to the installation and maintenance of electrical equipment on Customer's premises.

CHAPTER 2

INSTITUTIONAL ARRANGEMENT

Responsibility of the Authority

8. The Authority shall take all lawful steps necessary to ensure that the Licensee, Owner and Customer within the Kingdom of Bhutan undertake their activities in a manner that is Electrically Safe.
9. The Authority shall conduct audit(s) and inspections of Licensee to verify compliance with this Regulation, relevant standards and Safety Rules to ensure that the activities are undertaken in an Electrically Safe manner.
10. The Authority may, either on its own initiative or in partnership with Licensee(s), undertake public awareness campaigns or workshops designed to raise awareness of risks inherent in the transmission, distribution and use of electrical energy and to minimize the risks to the general public.
11. The Authority shall compile, maintain, and disseminate safety statistics relating to the activities of Licensee(s).

Responsibility of the Licensee

12. The Licensee shall undertake their activities in a manner that is Electrically Safe and in a manner that complies with the regulations and codes issued by the Authority, relevant standards and the Licensee's own Safety Rules.
13. Notwithstanding the provision of Section 7 of this Regulation, the Licensee shall ensure that all Power Systems under their control are designed and constructed in a manner that will enable it to be operated and maintained in an Electrically Safe manner in accordance with the relevant standards.
14. The Licensee shall issue Safety Rules for the design, construction, operation and maintenance of Power System under their control in a manner that is Electrically Safe. The Safety Rules shall:
 - (1) comply with relevant standards, codes and regulations issued by the Authority;
 - (2) be consistent with good industry practice; and
 - (3) be relevant in that due account is taken of the structure of a Licensee's organization and the specific arrangements in place to manage its operations.
15. The Licensee shall put in place a Safety Management System to ensure compliance with their Safety Rules.
16. The Licensee shall keep Safety Records and provide Safety Reports as required by the Authority.

17. The Licensee shall provide Safety Equipment as required by their Safety Rules and shall periodically inspect and test these equipment as recommended by the manufacturers, and shall maintain records of all safety inspections and tests.
18. The Licensee shall report Serious Safety Incidents to the Authority.
19. The Licensee shall assist the Authority in the conduct of any Safety Audit or investigation into a Serious Safety Incident and provide all information reasonably required by the Authority during any Safety Audit or investigation of any Serious Safety Incident.
20. The Licensee shall incorporate the safety provisions in any relevant contractual document which shall be complied by the contractor during execution of the contract.
21. The Licensee shall make safety an integral part of work processes to ensure safety for employees including employees of contractors.
22. The Licensee shall promote public awareness of Electrical Hazards and safe work practices.
23. The Licensee shall not connect supply to a consumer's premise(s) if the Licensee reasonably considers that the consumer's electrical installation is potentially hazardous.

CHAPTER 3

DESIGN, CONSTRUCTION AND INSTALLATION SAFETY

Power System Design and Construction

24. The Licensee shall design and construct Power System in accordance with good industry practice to minimize the hazard to employees and to the general public.
25. The Licensee shall design installations and equipment to ensure that all metallic parts that might potentially become energized at voltages exceeding 125 volts alternating current are effectively earthed. In particular:
 - (1) Medium and High Voltage installations shall incorporate an earth system that:
 - (a) ensures the effective operation of protection devices;
 - (b) limits step and touch potentials to safe levels; and
 - (c) prevents danger due to the transfer of hazardous voltages through metallic conductors such as pipelines, fences, etc., located in the vicinity of the installation.
 - (2) metal poles and towers of overhead transmission and distribution lines shall be effectively connected to earth;
 - (3) an earth connection shall be provided at all Customer installations with an earth resistance sufficiently low to provide adequate current to ensure the reliable operation of protective devices; and
 - (4) neutral conductors of low voltage supply systems shall be connected to earth at the source of supply.
26. Any live conductor of Medium or High Voltage electrical plant or equipment shall be protected by an automatic protective device.
27. For every overhead line, substation or generating station which is exposed to lightning, the Licensee shall adopt means as per relevant standards for diverting electrical surges to the earth due to lightning which may result in injuries.
28. The earthing lead for any lightning arrester shall be routed through the shortest path and shall not pass through any iron or steel pipe, but shall be taken as directly as possible from the lightning arrester without touching any metal part to a separate vertical earth electrode or junction of the earth mat already provided for the substation of voltage exceeding Low Voltage subject to the avoidance of bends wherever practicable.
29. Where conductors of different voltages are installed on the same support or where an overhead line crosses another overhead line, the Licensee shall maintain adequate safety clearance in accordance with the relevant standards.

Clearance of Overhead Lines

30. The minimum vertical clearance, in meters, between the ground or road surface and the lowest conductor of the overhead line is specified in Table 1, based on the nominal voltage.

Table 1: Overhead electrical conductor clearances

Particulars	400 kV	220 kV	132 kV	66 kV	33 kV & 11 kV & 6.6 kV	LV Bare Conductor	LV Covered Conductor
Ground Clearance Across Street	NA ¹	7.0 m	6.1 m	6.1 m	6.1 m	5.8 m	5.5 m
Along Street	NA	7.0 m	6.1 m	6.1 m	5.8 m	5.8 m	5.5 m
Elsewhere	8.84 m	7.0 m	6.1 m	5.8 m	5.8 m	5.0 m	4.6 m

Clearances of Overhead Conductors from Buildings

31. The Licensee shall ensure that where an overhead conductor passes over or adjacent to any building or part thereof, the required clearances specified in the table below are maintained, based on the maximum sag or maximum deflection due to wind pressure.

Table 2: Clearance requirements for overhead conductors from buildings

Voltage Level (kV)	Minimum Vertical Clearance Above Buildings	Minimum Horizontal Clearance from Buildings
Up to 11 kV	2.5 meter	1.2 meter
33 kV	3.7 meter	1.8 meter
Above 33 kV	3.7 meter plus 0.3 meter for every additional 33 kV or part thereof	2.0 meter plus 0.3 meter for every additional 33 kV or part thereof

Underground Cable

32. Underground cable shall be protected by suitable mechanical protection such as bricks or concrete tiles, positioned directly above the cable along its whole length.
33. Underground power cables up to 33 kV must maintain a minimum separation of 0.3 meters from telecommunication cables and 0.6 meters from underground power cables exceeding 33 kV.
34. Underground cables shall not be routed across underground oil tanks or oil pipelines.

¹ NA means 'Not Applicable'

35. Underground cables through the charging area or vehicle passage shall be avoided and if the installation is unavoidable, then a minimum depth of one (1) meter from the Finished Ground Level shall be maintained.
36. The Licensee shall provide sign boards to create awareness in an area wherever there is an underground cable to prevent the unauthorized digging and excavation of the area.
37. The minimum depth of burial below the Finished Ground Level of underground electric power cables shall be in accordance with table 3.

Table 3: Depth of Burial of Underground Cable

Particulars	Minimum Depth
66 kV	1.2 meter
33 & 11 kV	1.0 meter
LV	0.6 meter

Protection

38. The Licensee shall:
- (1) ensure that the Power System is equipped with adequate and coordinated protection, where applicable, to automatically disconnect the supply under abnormal or fault conditions;
 - (2) install and maintain adequate anti-climbing arrangements, in accordance with relevant standards, on supports of overhead lines exceeding 33 kV;
 - (3) provide clear identification for installation having more than one feeder;
 - (4) ensure that where alternating current and direct current circuits are installed on the same box or support, they are adequately arranged and protected to prevent any contact between them; and
 - (5) ensure that where an overhead line crosses or is installed near any existing line, the subsequent erected line shall be designed and constructed with suitable protective devices or guarding arrangements, in accordance with the relevant standards.

CHAPTER 4

GENERAL SAFETY MANAGEMENT AND REQUIREMENTS

Safety Rules

39. The Licensee shall prepare Safety Rules in accordance with the requirements of this Regulation. Safety Rules shall be specific to the Licensee's organization and shall reflect the type of Power System under the control of the Licensee and the management structure and arrangements of the Licensee's organization.
40. Safety Rules shall ensure that work in the vicinity of electrical apparatus is undertaken in a manner that is Electrically Safe.
41. Safety Rules shall include requirements to ensure that precautions, such as roping off work areas or displaying warning signs, are taken to minimize risk to the general public when work is undertaken in a publicly accessible location and shall identify additional precautions necessary when a work site, such as a ground excavation, is left unattended.
42. The Licensee shall determine the scope and content of the Safety Rules, which shall cover electrical safety and may also cover non-electrical safety. The Safety Rules shall include the following, but not limited to:
 - (1) safety awareness;
 - (2) identification of hazards;
 - (3) safety equipment;
 - (4) access control;
 - (5) minimum approach distances;
 - (6) work permits;
 - (7) test permits;
 - (8) isolation and earthing; and
 - (9) work on equipment requiring special precaution.

Safety Management System

43. The Licensee shall implement a Safety Management System to ensure compliance with this Regulation, applicable Safety Rules, and all other statutory safety obligations.
44. The Safety Management System shall include as a minimum requirement the following features:
 - (1) a process by which employees are trained in the need for electrical safety and in the requirements of the Safety Rules that relate to the work to be performed;
 - (2) a means by which compliance with Safety Rules is monitored by the Licensee as per the schedule;
 - (3) a process for disciplining employees who fail to comply with the Safety Rules where the non-compliance is a serious breach;
 - (4) a process for the periodic inspection and testing of Safety Equipment; and
 - (5) a process by which Safety Rules are regularly reviewed and updated.

45. The Licensee shall carry out internal safety audits at least once a year and shall submit the report to the Authority within one month after the completion of the safety audit.

Safety Officer

46. The Licensee shall designate a senior staff as its Safety Officer. The Safety Officer shall be responsible for the operation of the Safety Management System and for liaison with the Authority on issues relating to electrical safety. Licensee shall inform the Authority, name and telephone number of their Safety Officer.
47. The Licensee employing twenty (20) or more persons shall appoint at least one (1) full-time Safety Officer.

Emergency Management Plan

48. The Licensee shall formulate and implement an on-site Emergency Management Plan to effectively respond to probable emergencies including fire, explosion, gas leakage, and natural calamities such as floods, cloudburst, earthquakes, storms, cyclones, hurricanes, and landslides.
49. The Licensee shall ensure that an emergency mock drill is conducted at least twice a year.
50. Emergency exits shall be provided in accordance with relevant standards.
51. The Licensee shall provide and maintain sirens or other audible warning systems which shall be clearly audible throughout the workplace and shall be tested at regular intervals.
52. The Licensee shall provide an automatic emergency backup power supply system, to ensure safe and timely transfer of load and continuity of supply to critical systems and essential services in the event of failure of the normal power supply.
53. The Licensee must have a first aid kit readily accessible and stocked.

Fire Detection, Protection and Maintenance System

54. The Licensee shall provide, operate, and maintain adequate fire detection, alarm, and fire-fighting systems for Power System, and shall ensure continuous operational readiness of such systems in accordance with relevant standards.
55. The Licensee shall install adequate and suitable portable fire extinguishers at identified fire-risk locations and maintain them in serviceable condition.

Access Control

56. Medium or High Voltage switchyards and other Medium or High Voltage equipment that is located less than 3 meters above ground level shall be surrounded by a locked enclosure to prevent unauthorized access. Control buildings and buildings containing Medium or High Voltage electrical equipment shall also be locked.

57. Keys allowing access to control rooms, switchyards and enclosed Medium or High Voltage equipment shall be issued only to Competent Persons. Other persons shall enter such areas only when under the direct and continuous supervision of a Competent Person.

Minimum Approach Distances

58. Safety Rules shall include a table of Minimum Approach Distances, which shall specify the minimum distance employees must maintain between themselves and any live Bare Conductor, unless following an approved industry procedure and using appropriate safety equipment. Minimum Approach Distances shall apply to any part of the employee's body or clothing and to anything in contact with the employees such as vehicles, tools and ladders.
59. Minimum Approach Distances shall not be less than the values in table below:

Table 4: Minimum Approach Distance

Nominal Design Voltage (kV)	Minimum Approach Distance (meter)
400	8.3
220	5.5
132	4.2
66	2.8
33	2.1
11	1.5
0.4	0.5

Note: The above minimum approach distances have been derived by adjusting values typically used in other jurisdictions to allow for the high altitudes in many parts of Bhutan.

60. No person shall work within the Minimum Approach Distance of a Bare Conductor, unless:
- (1) the conductor has first been isolated and earthed in accordance with Section 73 of this Regulation;
 - (2) the work is being undertaken in accordance with an approved industry safety procedure; or
 - (3) a Safety Observer ensures the person stays well clear of the live Bare Conductor, and acts in a safe manner. The Safety Observer shall remain outside the Minimum Approach Distance at all times.

Work Permit

61. The Licensee shall establish a Work Permit system designed to ensure the safety of employees, contractors and other personnel working on or near electrical plant(s) or equipment(s) controlled by the Licensee when the plant or equipment is energized or put into service. The system shall be designed to ensure that before a Work Permit is issued, measures are taken to ensure that the plant or equipment cannot be energized or put into

service. These measures shall remain in place until all Work Permits issued to employees and contractors have been returned. Safety Rules shall describe the operation of the Work Permit system and the measures to be taken to ensure that plant and equipment cannot be energized while a Work Permit is in place.

62. All personnel, except those working under close supervision, who are required to work within, or close to, plant or equipment for which Work Permits are required, shall be trained in the operation of the Work Permit system.
63. Special safety precautions are necessary to protect personnel who are working on or near Medium or High Voltage Bare Conductors, since it is possible for hazardous voltages to be induced in the conductors even though the primary supply source is switched off and locked. These precautions are described in Section 73 of this Regulation.
64. Where equipment being worked on needs to be energized or operated for testing, Safety Rules shall provide for a Test Permit in accordance with the requirements of Section 81 of this Regulation.
65. The Licensee shall develop their own procedures and instructions for the issue and return of Work Permits and Test Permits. However, the following minimum requirements shall apply:
 - (1) Work Permit(s) and Test Permit(s) for a particular generation plant or area of a transmission or distribution network shall be issued from a single location;
 - (2) a written record shall be kept of all Work Permits and Test Permits issued. As a minimum the record shall include:
 - (a) the day and time the permit is issued;
 - (b) the name of the person to whom the permit is issued;
 - (c) the location where the work is to be carried out, the point or points of isolation and any other required safety precautions;
 - (d) the day and time the permit is returned; and
 - (e) the day and time the plant or equipment is returned to service.
66. The employee receiving a Work Permit shall inform the permit issuer once the work has been completed and the equipment can be returned to service. Such information shall not be given until all personnel and tool(s) are clear of the equipment and all temporary earths and other safety precautions have been removed. Following return of a Work Permit, equipment shall not be returned to service except under the instruction of the permit issuer.
67. Notwithstanding the requirements of Section 66 of this Regulation, in situations where direct communication from the work location between the issuer of a Work Permit and the person holding the permit is not possible, permission to return to service on completion of the work may be given at the time a permit is issued. In this case, the

situation must be recorded on the written record of the permit required under Subsection 65(2) of this Regulation, and the person holding the Work Permit must advise the issuer that the plant or equipment has been reenergized as soon as reasonably possible after reenergization.

68. The Licensee shall implement a Lockout or Tagout procedure to ensure that isolated equipment cannot be inadvertently energized or operated, and shall ensure that Lockout/Tagout devices are applied and removed only by authorized and trained personnel.

Test Permit

69. A Test Permit shall be issued where equipment that is being worked on must be reenergized or operated for testing before it is made available for service. A Test Permit shall only be issued if both the issuer and the recipient are satisfied that the testing can be carried out safely.
70. A Test Permit shall only be issued after all Work Permits relating to the plant to be tested have been returned to the permit issuer. Only one Test Permit on a plant item shall be issued at any time.
71. The requirements of Section 65 of this Regulation apply to the issue of Test Permits. In addition, the documentation required under Subsection 65(2) shall record any special safety measures to be put in place during the period of the test.
72. The recipient of a Test Permit shall inform the permit issuer in writing once testing has been completed.

Isolation and Earthing

73. Prior to commencing work on de-energised Medium and High Voltage electrical apparatus, isolation and earthing shall be applied to prevent hazard from causes that include but are not limited to:
 - (1) inadvertent reconnection to the supply;
 - (2) interconnection with other parts of the Power System or any other Power System such as a back feed from a transformer;
 - (3) stored charge in capacitors, power cables and bushings;
 - (4) induction from adjacent circuits, atmospheric conditions or direct lightning strike;and
 - (5) back feed from secondary circuits such as voltage transformers.

This may require isolation and earthing to be applied at a number of points around the equipment to be worked on, and not only at the point at which it is normally energized.

74. When disconnectors or other equipment are used to form isolation points for plant and equipment on which a work permit is to be issued, the equipment shall be:

- (1) locked in the open position where practicable; and
 - (2) tagged.
75. Earth switches or other dedicated earthing equipment shall be used where available but should not be relied on to protect a worksite unless:
- (1) the earth switch is locked in the earthed position and tagged; and
 - (2) the earthing equipment is visible from the work site.
76. Where the earthing point is not visible from the work site, properly designed portable earth connections shall be applied. All phase and neutral conductors shall be bonded together and connected to earth. It is not acceptable to earth only the conductor being worked on or to provide a separate earth connection for each conductor.
77. Conductors shall be proven deenergized on all phases prior to the application of portable earths to any set of conductors where an earth is not visible on those conductors at that location.
78. For work on overhead lines, portable earths shall be applied on both sides of the work location. One set of earths shall be placed as close as possible to the work site and shall be visible from it.
79. The earthing systems belonging to the Licensee shall be tested for resistance on dry days during the dry season not less than once every two years.
80. A record of every earth test made and its result thereof shall be kept by the Licensee and the latest test report shall be provided when asked by the Authority.

Work on Equipment Requiring Special Precautions

81. Before work starts on any power cable, it shall be identified beyond doubt before commencing work, and the person in charge of the work site shall be satisfied that safety measures have been applied to the correct cable. If positive identification is not possible the cable shall be spiked before the cable is cut or opened. Spiking shall be done using a proprietary cable-spiking tool, which shall be operated in accordance with the manufacturer's recommendations.
82. Before any work (except testing) is undertaken on the windings or terminals of a distribution transformer, the transformer shall be isolated from the Medium or High Voltage supply on all phases and the Medium or High Voltage terminals shall be earthed and short circuited. The Low Voltage terminals or conductors shall also be isolated since inadvertent energization of the Low Voltage connection of a transformer can cause full line voltage to arise on the Medium or High Voltage side.
83. The secondary circuit of a current transformer shall not be open circuited while the primary side is live. The secondary terminals shall be short circuited before carrying out work on any part of the secondary circuit.

84. When working on earth or neutral conductors or connections care must be taken to avoid hazards arising from possible differences in voltage. If insulating gloves are not used, a bond should be applied across any proposed connection or disconnection before the connection or disconnection is made.
85. Metallic communication circuits that do not form part of an earth conductor but runs on the same poles, as live conductors shall be regarded as live.

CHAPTER 5
SAFETY REQUIREMENTS FOR SOLAR, BATTERY ENERGY
STORAGE SYSTEM (BESS), WIND AND ELECTRIC VEHICLE
(EV) CHARGING STATIONS

Safety Requirement for Solar Power Plant and Solar Rooftop Systems

86. The Licensee shall ensure the following general safety requirement for solar power plant installations, namely:
- (1) provide clear access pathways of adequate width for safe movement, roof access, and emergency exit, and shall provide handrails where required, including on sloping surfaces;
 - (2) cables shall be laid in trenches for ground based photovoltaic installation;
 - (3) ground mounted solar power plant installations shall be adequately protected so as to prevent unauthorised entry;
 - (4) install disconnection switches or circuit breakers provided to disconnect the photovoltaic system from all other conductors of the Power System depending upon system selection;
 - (5) ensure that the three phases on the alternating current side and the positive and negative conductors on the direct current side are clearly marked and identified using distinct colours;
 - (6) install the inverter unit for a solar power plant at the periphery of the building and as close as practicable to the solar panels, and shall ensure that all direct current cables are ultraviolet (UV) resistant or are routed through UV-protected conduits; and
 - (7) provide a manual disconnection switch to isolate the solar system from the grid, and shall install such switch at an accessible location outside the alternating current combiner box.
87. The Licensee shall ensure that the inverter cabinet frame is effectively connected to the earthing busbar through designated earthing terminals using flexible braided copper conductors.
88. The grid-connected solar PV systems, including rooftop installations, shall be equipped with anti-islanding protection to automatically detect unintentional islanding and disconnect the system from the grid.
89. Anti-islanding protection shall be tested during commissioning of the solar PV system and periodically thereafter as part of routine maintenance.
90. Automatic reconnection to the grid shall occur only when grid voltage and frequency are within permissible limits, ensuring safe resumption of operation.

91. Records of testing, maintenance, and personnel training shall be maintained to ensure operational safety and regulatory compliance.

Safety Requirement for BESS

92. The Licensee shall ensure that the BESS installations comply with relevant standards.
93. The Licensee shall conduct a documented Fire Risk Assessment (FRA) prior to commissioning and following any material modification, technology change, or capacity expansion.
94. The FRA shall identify fire, thermal, chemical, and explosion hazards; assess the risk to personnel, property, and the public; and recommend appropriate risk mitigation measures.
95. The Licensee shall implement safety measures and mitigation systems to manage identified risks, including fire detection and suppression, containment of hazardous materials, and ventilation or thermal management systems in accordance with relevant standards.
96. Where required by the Authority, the Licensee shall provide documentation supporting fire and safety risk assessments, including applicable test data or equivalent fire performance evaluations.
97. The Licensee shall ensure that employees working on, operating, or maintaining BESS are adequately trained in battery safety, anti-islanding procedures, emergency shutdown, and associated hazards, shall maintain appropriate safety documentation, and shall control access to prevent unauthorized entry.
98. The grid-connected BESS shall incorporate anti-islanding protection or equivalent schemes to prevent unintentional islanding and to ensure safe disconnection from the grid during abnormal conditions.
99. The Licensee shall implement a documented inspection, testing, and maintenance program for BESS installations in accordance with manufacturer instructions and relevant standards.
100. Records of inspections, testing, maintenance, incidents, corrective actions, and personnel training shall be made available to the Authority when required.
101. The Licensee shall ensure that BESS installations are safely decommissioned in accordance with relevant standards, environmental requirements, and good industry practice, and that the site is left in a safe condition following decommissioning.

Safety Requirements for Wind

102. The Licensee shall design, install, operate, and maintain all electrical installations and components to prevent hazards to personnel and equipment as per relevant standards.
103. The Licensee shall maintain safety documentation, including risk assessments, standard operating procedures, and emergency procedures at all operational sites.
104. Wind turbines shall be equipped with lightning protection systems, including:
 - (1) Blade tip lightning receptors.
 - (2) Proper bonding of all metallic structures.
105. Lightning protection equipment shall be inspected and maintained annually.
106. The Licensee shall provide the wind turbine to be equipped with fail-safe control systems to automatically place the turbine in a safe shutdown state in the event of:
 - (1) Loss of control signals;
 - (2) Overvoltage or overcurrent;
 - (3) Overspeed or mechanical fault;
 - (4) Fire detection; and
 - (5) Grid fault or islanding.
107. Emergency shutdown systems shall be accessible, clearly labelled, and tested periodically.
108. The Licensee shall ensure that the employees exposed to potential falls to be equipped with certified fall arrest systems, including full-body safety harnesses, shock absorbing lanyards, and anchor points.
109. Towers and platforms shall include guardrails, anti-slip surfaces, and safe access ladders.
110. The Licensee shall maintain a documented emergency response plan, including fire, electrical, medical, and evacuation procedures.

Safety Requirements for EV Charging Stations

111. The Owner shall provide separate protection against the overload of incoming and outgoing supply as per relevant standards.
112. The Owner shall install a socket-outlet of supply of EV charging points at appropriate height above the Finished Ground Level depending upon the location.
113. The Owner shall ensure that an EV is connected to a charging point using only the designated supply lead, and shall prohibit the use of any cord extension set or additional supply lead for such connection.

114. The Owner shall ensure that EV connectors are directly compatible with the corresponding vehicle inlets and shall use designated adaptors, so as to maintain proper electrical, mechanical, and communication integrity and to prevent unsafe operating conditions.
115. The Owner shall provide lightning protection systems for the EV charging stations as per relevant standards.
116. The EV charging station shall be equipped with a protective device against the uncontrolled reverse power flow from EV to the charging point.
117. The EV charging point shall disconnect supply of electricity to prevent overvoltage at the battery, if the output voltage exceeds maximum voltage limit permissible for the vehicle.
118. The EV charging points must not energise the charging cable unless the vehicle connector is in the locked position.
119. The Owner shall ensure that the tests are performed as specified in the manufacturer's instructions for the residual current devices.

CHAPTER 6

SAFETY REQUIREMENTS FOR GAS INSULATED SUBSTATION (GIS)

General Safety Requirements

120. The Licensee shall provide a separate emergency source of illumination with automatic initiation in every room or compartment of GIS.
121. The Licensee shall provide cable cover protection unit between flanges of GIS and cable termination unit.
122. GIS installation of 220 kV and above voltage shall be provided with a partial discharge monitoring system.
123. SF6 gas leakage rate from any single compartment of GIS to atmosphere and between compartments shall not exceed as stipulated in the relevant standards.
124. The Licensee shall develop standard operating procedures for safety during operation and maintenance.

CHAPTER 7

CUSTOMER SAFETY

General Duty of Customer

125. The Customer shall:

- (1) use electricity in a safe and responsible manner so as to prevent danger to life, property, and the electrical system;
- (2) comply with all safety directions, advisories, and instructions issued by the Authority or the Licensee from time to time;
- (3) ensure that electricity supplied to the premise(s) is used only for lawful and intended purposes and in a manner that does not create Electrical Hazards;
- (4) take reasonable precautions to prevent electrical risks arising from activities or conditions within the Customer's premise(s);
- (5) ensure safe operation and use of electrical installations and appliances within the premise(s);
- (6) avoid unauthorized looping, tapping, or extension from existing internal wiring;
- (7) use electrical appliances and accessories that are appropriately rated and suitable for the electrical load;
- (8) operate electrical equipment in accordance with the manufacturer's instructions and safety requirements; and
- (9) avoid overloading electrical outlets, sockets, or extension devices.

126. Where temporary electrical connections are used for events, construction activities, or temporary purposes, the Customer shall inform the Licensee for removal after completion of intended activity.

127. The Customer shall promptly notify the Owner, Licensee or Authority upon becoming aware of any electrical condition that may pose a safety risk.

128. The Customer shall promptly report to the Owner, Licensee or Authority any electrical accident, fire, or injury occurring within the premises involving electrical installations or equipment.

129. The Customer shall engage only certified electricians for electrical renovation, maintenance, repair, or alteration works within the premise(s).

CHAPTER 8

INCIDENT MANAGEMENT, ENFORCEMENT, AND COMPLIANCE

Safety Audit

130. The Authority may audit the compliance of employees and contractors with a Licensee's Safety Rules and the effectiveness of a Licensee's Safety Management System. The frequency and scope of Safety Audit(s) shall be determined by the Authority.
131. Safety Audit(s) may be undertaken by the Authority's own staff or by an appropriately qualified contractor engaged by the Authority for the purpose. The costs associated with a Safety Audit shall be paid by the Licensee.
132. The Authority shall normally give a Licensee reasonable notice of its intention to undertake a Safety Audit. However, the Authority may undertake a Safety Audit without prior notice should it be warranted.
133. The Authority shall give a Licensee an opportunity to comment on the report of a Safety Audit prior to the finalization of the report.
134. The Authority may require a Licensee to take, at the Licensee's own cost, appropriate corrective action to address any findings of a Safety Audit.

Investigation of Serious Safety Incidents

135. The Licensee shall notify Serious Safety Incident to the Authority no later than the end of the next Day following its occurrence. If the incident is of a significant nature, the Licensee shall submit to the Authority, a comprehensive report in writing, within five (5) days from the date of the incident.
136. The Authority may require a Licensee to investigate, or may itself investigate, any Serious Safety Incident.
137. Where the Serious Safety Incident results in a fatality, an investigation pursuant to Section 136 of this Regulation shall be carried out. Where the Serious Safety Incident does not involve a fatality, the Authority may decide whether an investigation shall be undertaken.
138. The Authority may engage an appropriately qualified contractor to undertake an investigation into a Serious Safety Incident on its behalf.
139. The Licensee shall not destroy evidence that may be relevant to the investigation into a Serious Safety Incident without the prior consent of the Authority, and shall comply with all reasonable requests of the Authority in relation to the conduct of any such investigation.

140. A written report shall be prepared on each investigation into a Serious Safety Incident. The report shall identify the probable cause of the Serious Safety Incident and shall make recommendations on corrective actions to be taken to reduce the risk of similar events occurring in the future to the extent that this is appropriate.
141. The Authority may require a Licensee to take corrective action(s) as a result of the finding(s) of an investigation into a Serious Safety Incident.
142. All costs associated with an investigation into a Serious Safety Incident shall be borne by the Licensee.

Safety Reporting

143. The Authority may require Licensee to regularly report to it on the safety of their operations, and may specify the format, frequency and content of such Safety Reports.
144. The Authority may determine and define a set of standard Safety Indicators to be reported by Licensee in their Safety Reports.
145. The Licensee shall maintain all Safety Records necessary to ensure the accuracy of Safety Reports.

CHAPTER 9

MISCELLANEOUS AND TRANSITIONAL

Dispute Resolution

146. Any dispute arising from the enforcement of the provision of this Regulation shall be dealt in accordance to the Dispute Settlement Rules and Regulations 2025.

Non-Compliance

147. Failure to comply with these rules and regulations, or any part thereof, shall result in action in line with the Penalty Rules and Regulations approved by the Authority.

Amendment

148. The Authority may amend this Safety Code Regulation as and when required.

Definitions

149. For the purpose of this Regulation, any word or expression used to which a meaning has been assigned in the Electricity Act of Bhutan, 2001, shall have that meaning, unless explicitly indicated in the Regulation. Unless the context otherwise requires, the following words and expressions shall have the meaning ascribed to them:

- (1) “Act” means the Electricity Act of Bhutan, 2001 and its amendments;
- (2) “Authority” means the authority of that name established pursuant to part 2 of the Act;
- (3) “Bare Conductor” means any conductor that is uninsulated or insulated to less than its full working voltage;
- (4) “Building” means any structure, whether permanent or temporary;
- (5) “Certified Electrician” means a person who is authorized to carry out electrical wiring, testing, inspection and maintenance of the electrical installations of the premises in the country and is certified by the Bhutan Qualifications and Professionals Certification Authority;
- (6) “Competent Person” means any person who can demonstrate to the Licensee, the knowledge of the hazards present in the workplace and that he or she has the necessary knowledge, skills and experience to undertake assigned work in a manner that is Electrically Safe and in compliance with the Safety Rules;
- (7) “Covered Conductor” means any conductor that is insulated;
- (8) “Customer” means any person who is supplied with electricity for his own use by the Licensee or by any other person engaged in the business of supplying electricity

to public under the Act or any other relevant law and includes any person whose premise(s) are for the time being connected with the distribution system of the Licensee for the purpose of receiving supply of electricity;

- (9) “Day” means a day, other than a Saturday or Sunday, or a public holiday;
- (10) “Earthing” means connection of the exposed conductive and extraneous parts of an installation to the main earthing terminal of that installation or connection of neutral of transformer or generator or equipment to general mass of earth or earth bonded bar of that installation;
- (11) “Electrical Hazard” means any condition, situation, or substance that has the potential to cause injury, death, or damage due to the generation, transmission, distribution, or use of electricity;
- (12) “Electrically Safe” means having no significant risk of injury or death to any person, or of damage to any property, as a result of the use of electric power plant and equipment;
- (13) “Electric Vehicle” means any vehicle propelled, partly or wholly, by an electric motor drawing current from a rechargeable storage battery, or other portable energy storage devices or other self-generating electric source;
- (14) “Enclosed” means any premises or enclosure or part thereof, being large enough to enable the entry of a person after the apparatus therein is in position, containing apparatus for transforming or converting electricity to or from a voltage at or exceeding six hundred fifty volt (other than transforming or converting solely for the operation of switch gear or instruments) with or without any other apparatus for switching, controlling or otherwise regulating the electricity, and includes the apparatus therein;
- (15) “Finished Ground Level” means the final elevation of the ground surface after all earthworks and site finishing activities are completed;
- (16) “Good Industry Practice” means practices and procedures that a competent operator in the relevant industry would reasonably adopt under similar circumstances, consistent with applicable laws, recognized standards, and manufacturer guidance, to ensure safe, reliable, and hazard-minimized operation;
- (17) “High Voltage” means nominal voltage of 66 kV and above;
- (18) “Relevant Standard” means safety requirements or guidelines issued by recognized international standard-setting bodies such as IEC, IEEE, ISO, or equivalent organizations to ensure safe and reliable systems and operations.

- (19) “Licence” means a Generation Licence, Transmission Licence, Distribution Licence or System Operation Licence issued by the Authority under the Electricity Act of Bhutan, 2001;
- (20) “Licensee” means the holder of a Generation Licence, Transmission Licence, Distribution Licence or System Operation Licence issued by the Authority under the Electricity Act of Bhutan, 2001;
- (21) “Low Voltage” means any voltage not exceeding 400 volts between phase to phase for three phase supply or 230 volts between phase to neutral in case of single-phase supply;
- (22) “Medium Voltage” means nominal voltages of 6.6 kV or 11 kV or 33 kV;
- (23) “Minimum Approach Distance” means the minimum distance when approaching live Bare Conductors that shall apply to employees, contractors or other persons without the use of special safety precautions;
- (24) “Owner” means any person having legal ownership, possession, operational control, or responsibility for the operation, maintenance, or safety of an electrical installation, electric supply line, or electrical equipment;
- (25) “Person” means any individual, firm, company, association, partnership or body of persons, whether incorporated or not;
- (26) “Power System” means the total system relating to power supply including associated generation, transmission and distribution networks and the Owners’ electrical system;
- (27) “Safety Audit” means an audit undertaken by, or on behalf of the Authority, of the effectiveness of a Licensee’s Safety Management System or of the extent of compliance with a Licensee’s Safety Rules;
- (28) “Safety Equipment” means tools or safety gears to protect person(s) from potential hazards;
- (29) “Safety Indicator” means an indicator, defined by the Authority, which measures a particular aspect of a Licensee’s safety performance;
- (30) “Safety Management System” means a plan, procedures, and practices established by a Licensee to ensure electrical safety, compliance with Safety Rules, and protection of personnel, the public, and property from Electrical Hazards;
- (31) “Safety Observer” means a person responsible for continuously observing a person who is within the Minimum Approach Distance of a live Bare Conductor to ensure that the person does not come into contact the live Bare Conductor;

- (32) “Safety Officer” means a competent and qualified person appointed to ensure compliance with applicable safety requirements, and to supervise and monitor implementation of measures necessary for the protection of life, property, and equipment;
- (33) “Safety Records” means records kept by Licensees during the normal course of business and relating to their operating performance in respect of safety;
- (34) “Safety Reports” means reports prepared by a Licensee on issues relating to electrical safety in compliance with the requirements of the Authority;
- (35) “Safety Rules” means the procedures or work instructions issued by a Licensee to ensure that the operation, maintenance and testing of power plant and equipment under the control of the Licensee is undertaken in a manner that is Electrically Safe;
- (36) “Serious Breach” means a non-compliance with the Safety Rules of a nature that could result in serious injury to any person or damage to property other than that of the Licensee;
- (37) “Serious Safety Incident” means an incident arising from the design, construction, operation or maintenance of an electric power plant or equipment that:
 - (a) results in the death of any person;
 - (b) results in an injury to any person which results in disability; and
 - (c) causes damage to property other than property belonging to a Licensee.
- (38) “Tagged” means marked to safeguard against an inadvertent change to the state of isolation or earthing point;
- (39) “Test Permit” means the permit for access equipment that is not available for service but that may need to be energized or operated for testing. Under a test permit a work party has temporary access for work activities to specific isolated equipment, which is in a defined state; and
- (40) “Work Permit” means a permit for access to, and work on or within the Minimum Approach Distance of, equipment that has been isolated for work other than testing under a Test Permit. Under a Work Permit, a work party has temporary access to specific isolated equipment, which is in a defined state.

150. Words or expressions used in these Regulations but not defined herein shall have the meanings assigned to them in the Act or Rules or Regulations framed thereunder.

Approved in the One Hundred Thirty Ninth Commission Meeting held on 22nd May 2026.

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