

STANDARD OPERATING PROCEDURE (SOP) FOR WORKING ON Electrical Installations:

Workers may get exposed to safety hazards from contact with live power lines during on-site work. The prevention and control measures associated with live power lines / cables includes;

- i. Only trained and certified workers shall be allowed to install, maintain, or repair electrical equipment.
- ii. Deactivate and properly ground live power cables before work is performed on, or in close proximity to the lines.
- iii. Ensure that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation Standards. Qualified or trained employees working on transmission or distribution system shall;
 - a) Distinguish live parts from other parts of the electrical system.
 - b) Determine the voltage of live parts.
 - c) Understand the minimum approach distances outlined for specific live line Voltages.
 - d) Ensure proper use of special safety equipment and procedures when working near, or on, exposed energized parts of an electrical system.
- iv. Workers shall not approach an exposed, energized or conductive part even if properly trained unless;
 - a) The Worker is properly insulated from the energized part with gloves or other approved insulation.
 - b) The energized part is properly insulated from the worker and any other conductive object (live-line work)
- v. Strict procedures for de-energizing and checking of electrical equipment shall be in place before any maintenance work is conducted. If de-energizing is not possible, electrical installations should be moved or insulated to minimize the hazardous effects.
- vi. In order to protect workers from electric shock in case of a faulty circuit to conductive equipment, all non-current carrying conductive components must be bonded together with a conductor of sufficient size. The impedance of the complete ground-fault circuit (phase conductor and bonding conductor) should be low enough to ensure sufficient flow of ground-fault current for fast operation of the proper circuit protective devices, and to minimize the potential for stray ground currents on solidly grounded systems.

- vii. Assume that all overhead wires are energized at lethal voltages. Never assume that a wire is safe to touch even if it down or appears to be insulated.
- viii. Never touch a fallen overhead power line. Call the SE(E)/ EE(E) to report fallen electrical lines.
- ix. Stay at least 10 feet (3 meters) away from overhead wires during on-site activities. If working at heights or handling long objects, survey the area before starting work for the presence of overhead wires.
- x. Never operate electrical equipment while you are standing in water.
- xi. If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).
- xii. While working on height such as structures, towers etc., use of Safety Harness, Safety Helmet is mandatory along with the other electrical PPE such as electrical hand gloves, Electrical safety shoes etc.
- xiii. No personal shall carry out or attempt any work on live apparatus and mains except under authorization from the Asst. Executive Engineer or Asst.Engineer, who is on duty in a Sub Station or in charge of the overhead or underground distribution Network.
- xiv. The work shall be taken up only after taking a 'Permit-to-work' as shown at **Appendix-I** and under the direct supervision of an authorized person, termed as 'Supervisor'.
- xv. Where, in the interest of continuity of supply, it is necessary after taking due precautions, to work on live electrical equipment for cleaning and repair work, particularly in receiving Stations and Sub-stations, such work shall be carried out only under the personal supervision of an officer.
- xvi. Except for emergencies, all work for repairs, maintenance and construction on or in close proximity to live apparatus and mains shall be pre-arranged and programmed. Accordingly, applications for pre-arranged shut-downs shall be submitted by the Asst.Engineer / Asst. Executive Engineer to the Executive Engineer, in the prescribed form at **Appendix - II** which when duly approved, will be presented to the concerned Permit Issuing Officer for switching out the apparatus and issue of 'Permit-to-work'.
- xvii. These applications shall be made sufficiently in advance to enable the Permit Issuing Officer to carry out necessary load transfers, if any, and other operations in connection with the work. The duration and nature of work must be clearly explained to the Permit Issuing Officer before getting a permit.

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**APPENDIX – I**

**PERMIT TO WORK ON 11 KV DISTRIBUTION NETWORK**

I, hereby declare that the following electrical equipment/line is dead and isolated from conductors.

A caution notice has been affixed to the controlling Device

.....  
.....  
.....

(Here state exactly the Electrical Equipment/line on which it is safe to work).

Signature with date, time and designation when permit is issued over phone, the name of the authorized person at opposite end must be recorded.

(Issuer)

(Receiver)

Serial Number of the permit:

(When permit is issued over phone)

(Sending end/Receiving end)

- i. This card after being signed by an authorized person for the work to proceed, is to be handed to the person in charge of the work and retained by that person until the work is completed or stopped by an authorized person.
- ii. The Electrical equipment mentioned hereon must not be again made live until this has been signed and returned by the person in charge of the work to an authorized person.

I, hereby declare that all me, earthing and materials under charge have cleared the equipment/line and men have warned that it is no longer safe to work on the electrical equipment specified on this card.

**APENDIX – II**

**APPLICATION FOR PRE ARRANGED SHUT DOWNS**

1. Name of the applicant:  
.....
2. Designation and address:  
.....
3. Section of line or feeder or equipment on which shutdown is required  
.....
4. Time, date and duration of shut-down: .....
5. Purpose of shutdown:  
.....
6. Consumers affected by shut-down:  
.....
7. Whether concurrence of competent authority obtained or not  
.....
8. Nearest contact No. ....

Signature of applicant recommending

Signature  
Approved by Officer-in-charge of station