

GRID INSTABILITY/ GRID FAILURE



FLEET & DEPOT OPERATIONS PROTOCOL



Trigger Points

- Sudden voltage fluctuations, frequency deviations, or grid failure alerts from DISCOM
- Power outage beyond backup capacity



Responsibility

EVSE Technician

Depot Manager

Electrical Safety Lead

Maintenance Team

Safety Officer

A. ⚡ CHARGING CONTROL



Responsibility:

Depot Manager



Suspend EV Charging

- Monitor grid voltage/frequency via SCADA or EMS.
- If instability is detected, issue command to halt all EVSE operations.
- Inform fleet coordinator about charging suspension.
- Place physical lockout tags on affected chargers if needed.



Responsibility:

EVSE Technician



Isolate Faulty EVSE Units

- Identify chargers showing abnormal current, voltage, or thermal alerts.
- Disconnect from power source and isolate from network.
- Tag units with fault status and log in maintenance system.
- Report to maintenance engineer for inspection.

B. 🔋 POWER BACKUP ACTIVATION



Responsibility:

Electrical Safety Lead



Switch to Backup Power

- Assess load requirements for critical systems (control room, fire safety, HVAC).
- Start DG/UPS/BESS systems as per SOP.
- Verify stable output before switching load.
- Monitor fuel/battery levels and runtime capacity.



Responsibility:

Facility Maintenance Lead



Verify HVAC and Fire Safety Systems

- Check operational status of fire alarms, suppression systems, and ventilation.
- Ensure backup power is supplying these systems.
- Manually test alarms and emergency lighting.
- Escalate any failures to safety officer.

C. 📞 COMMUNICATION & ESCALATION



Notify Utility Provider



Responsibility:

Depot Manager

- Contact grid operator or utility helpdesk.
- Share timestamp, nature of instability, and affected systems.
- Request timeline for resolution or load shedding schedule.
- Document communication in incident log.

D. EMERGENCY ACTIONS - SOPS



Responsibility:

Depot Manager

Depot Operation SOPs for Depot Manager

- Announce “Grid Instability – Standby Mode”
- Suspend all charging operations immediately
- Park buses safely; avoid movement during blackout
- Coordinate with DISCOM for restoration timeline
- Maintain communication with Safety Officer & Electrical Safety Lead
- Inform drivers and control center and alter the service frequency appropriately.
- Reroute buses to alternate charging locations if needed.
- Deploy mobile charging units if available.



Responsibility:

Electrical Safety Lead

SOPs for Safety Officer

- Initiate Emergency Power Shutdown if required
- Follow Lockout/Tagout procedure for faulty circuits
- Switch to backup power (DG/UPS) as per SOP
- Monitor for sparks, overheating, or smoke in panels
- Inform the Control Room
- Document electrical anomalies for post-event analysis