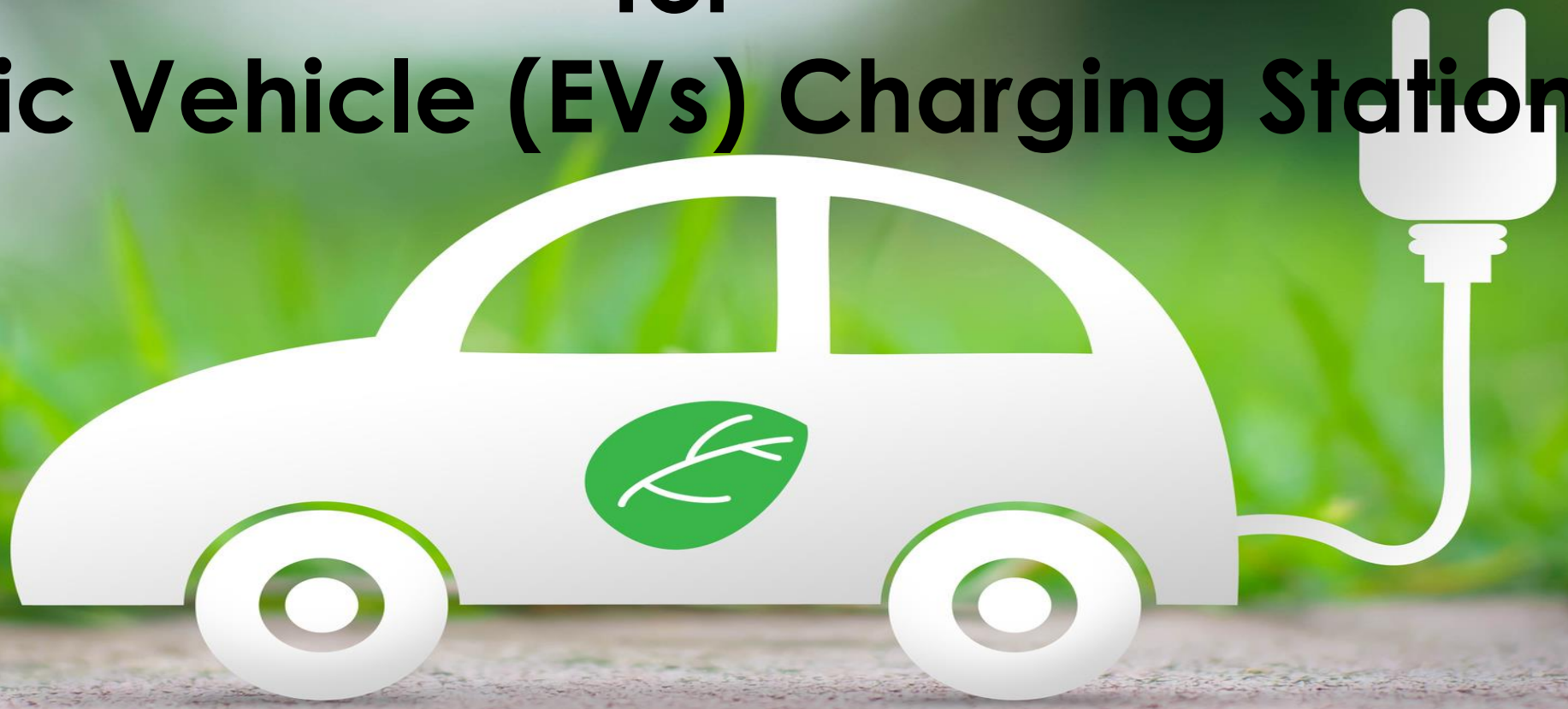
Safety Provisions for Electric Vehicle (EVs) Charging Stations



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117. General safety requirement for electric vehicle charging stations (EVCS)

- Designed, installed, tested, certified, inspected and connected as per these provisions.
- Protection against the overload of input supply and output supply fittings.
- Socket-outlet of supply should be at least 0.8 m above the finished ground level.

- No additional use of cord extension set or second cable assembly for connection.
- No Use of Adaptor at Vehicle inlet.
- Connection on the parked Vehicle should be within 5 meter from the charging Point while charging.
- No Portable socket-outlets for charging.

- Lightning protection system as per IS/IEC 62305.
- Protection against uncontrolled reverse power flow from vehicle.
- Disconnection of EV.
- Locking of the coupler.

- Protection against overvoltage at the battery.
- Verification of Vehicle Connector Voltage.

118.Earth protection system for charging stations

- Residual Current Device (RCDs) of minimum performance of Type A and be in conformity with IS 732 and their residual operating current not greater than 30 mA.

- All RCDs should be permanently marked.

- An individual dedicated final sub-circuit protected by an overcurrent protective device complying with IEC 60947-2, IEC 60947-6-2 or IEC 60269 series should be used for supply to Charging points.

- Co-ordination of various protective devices required.
- Discrimination (selectivity) between RCD of connecting point and upstream RCD.
- Sub-circuit of supply of EVCS should be protected by voltage independent RCD and compatible personal protection.
- Earth continuity monitoring system for all EVCS.

- Earthing for EVCS shall beas per IS 732.
- The cable should be fitted with earth-connected metal shielding and its insulation should be wear resistant & temperature flexible.

119. **Requirement to prevent fire for EVs Charging Stations**

- Firefighting system as per relevant provisions of CEA safety Regulations.
- Fire retardant material shall be used for its enclosures.
- Fire detection, alarm and control system as per relevant IS.
- Power supply cables used shall conform to IEC 62893-1and its relevant parts.

120. **Testing of EVs charging stations**:

- The insulation resistance of all apparatus shall be as per IEC 61851-1.
- Any other testing as specified by manufacturer.

121. Inspection and periodic assessment of charging stations

- Inspected by the owner or the Electrical Inspector or Chartered Electrical Safety Engineer before energization.
- Periodic inspection of EVCS on yearly basis for first 3 years and after that once in four years.
- Establishment and Implementation of electrical safety assessment programme for assessing safety of EVSE.

122. Maintenance of Records

- EVCS should be tested/inspected by owner/ electrical Inspector/ CESE and records of the same should be maintained.
- Records of relevant test certificates as per IEC 61851 & these regulations.
- The owner of the charging station shall keep records in regard to design, construction and labelling
- The owner of the charging station shall keep records of the results of every inspection, testing, periodic assessment, as above and details of any issues observed either in hard form or in electronic form, for at least seven years and shall produce when asked by authorized person.

123.International Standard for charging stations

- Safety provisions as per IEC 61851-1, IEC 61851-21 ,IEC 61851-22, IEC 61851-23, IEC 61851-24.

- Equipment shall have a degree of protection of at least IPX4 for outdoor/damp location installations.

Thank You