

Guidelines for Installation and Operation of Battery Swapping and Charging Stations

Ministry of Power has issued the Guidelines for Installation and Operation of Electric Vehicle Charging Infrastructure-2024. These guidelines are aimed at meeting the requirements of Electric vehicles (EV) with integrated batteries. The alternative method of powering electric vehicles is through swappable batteries which can be charged separately at dedicated battery charging stations. Battery swapping is a method of quickly replacing an EV's fully or partially discharged battery with a charged one. The following guidelines govern such battery charging systems:

1. **Short Title** These guidelines shall be called “Guidelines for Installation and Operation of Battery Swapping and Battery Charging Stations”.
2. **Applicability.** These guidelines shall be applicable to swappable battery providers, and owners and operators of battery charging stations and battery swapping stations located anywhere.
3. **Objectives:** Main objectives of these guidelines are as follows:
 - i) To promote swapping of batteries as an alternate method of powering EV.
 - ii) To promote battery as a service.
 - iii) To develop a battery swapping ecosystem.
4. **Definitions:**
 1. **Battery as a Service (BaaS)** means a business model where manufacturer of battery swapping equipment or a third-party provider owns and manages swappable electric vehicle (EV) batteries, leasing or renting them to EV owners or fleet operators.
 2. **Battery-swapping** means a method of quickly replacing an EV's fully or partially discharged swappable battery with a charged battery.
 3. **Battery swapping ecosystem** means a network of infrastructure and services that enables quick and efficient exchange of swappable EV batteries.
 4. **Battery Charging Station (BCS)** means a facility where fully or partially discharged swappable EV batteries are electrically recharged.

Note: Captive BCS are charging stations that are exclusively accessible to a specific group of users such as fleet operators, EV owners associated with a particular organization, community or building, and are not open to the public.
 5. **Battery Swapping Station (BSS)** means a facility where fully or partially discharged swappable batteries are electrically charged and quickly replaced with recharged batteries.

Note. Captive BSS are swapping stations that are exclusively accessible to a specific group of users such as fleet operators, EV owners associated with a particular organization, community or building, and are not open to the public.

6. **Battery to grid (B2G)** refers to a system where swappable batteries, typically from electric vehicles (EVs) or Battery Swapping Station (BSS), can not only store energy for use but also supply electricity back to the power grid when needed.
7. **Battery Provider** refers to any entity which provides swappable EV batteries or BaaS to EV owners.
8. **Swappable battery** means a modular battery designed for use in EVs that can be quickly and easily detached and replaced with another battery, to extend the vehicle range and allow for efficient recharge of the depleted battery.

Note: In case of any conflict, definitions in respective Acts, Rules & Regulation and guidelines as amended from time to time shall prevail.

5. Clauses 5, 7, 9, 11, sub-clause 5 of clause 12, 13 (except sub-clause 2) and 20 of the principal guidelines titled “Guidelines for Installation and Operation of Electric Vehicle Charging Infrastructure – 2024”, shall also be applicable for Battery Charging Stations, Battery Swapping Stations and Battery Providers.
6. Extant provisions relating to electrical safety shall be applicable to BSSs and BCSs.
7. Owners of BCS or BSS shall be permitted to use an existing electricity connection with or without seeking an increase in the connected load, for charging the swappable batteries.
8. Battery swapping or Battery charging stations may deploy liquid-cooled swappable batteries for larger vehicles such as trucks and buses.
