

Overview of Electric Vehicle Charging Infrastructure in Bangladesh



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Muhammad Khalequzzaman, Joint Secretary
Saiful Islam, Deputy Secretary
Power Division
Ministry of Power, Energy and Mineral Resources
Bangladesh



Bangladesh at a Glance

Indicator	Key Information
 Population	169.8 million — Population & Housing Census 2022
 Urbanization	~32% urban — Census 2022
 Road Network	22,737 km RHD network , including 4,409 km National Highways
 Electricity Capacity	32,322 MW installed capacity
 EV Opportunity	Rapid urbanization, growing motorization & emerging e-bus deployment
 Potential Priority EV Corridors	• Dhaka–Chattogram–Cox's Bazar–Teknaf • Dhaka–Benapole • Dhaka–Rangpur–Banglabandha • Dhaka–Sylhet–Tamabil

Rapid urbanization + road-dominated transport + expanding electricity infrastructure = strong potential for Bangladesh's transition to electric mobility and nationwide EV charging.



Why Bangladesh Needs Electric Mobility

🏠 Urban Air Pollution

EVs can reduce **transport-related pollution**, especially in Dhaka.

🛢️ Fossil-Fuel Dependence

Reduce reliance on **petroleum fuels and fuel-price volatility**.

📈 Growing Transport Demand

Urbanization and motorization are driving **rapid transport growth**.

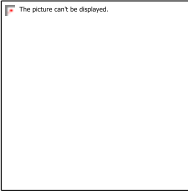
🌍 Climate Commitments

EVs support Bangladesh's **NDC and low-carbon goals**.

☀️🔌 Renewable-Energy Opportunity

Combine EV charging with **solar PV, storage and smart charging**.

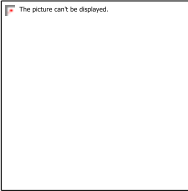




EV Landscape in Bangladesh

Segment	Current Situation
Electric Cars	Emerging market; adoption remains relatively low compared with conventional vehicles
Electric Buses	Early-stage adoption; significant potential for urban public transport and fleet electrification
Electric 2/3-Wheelers	Largest and most visible segment of electric mobility, particularly battery-powered 3-wheelers and light vehicles
Battery-Powered Mobility	Widely used for short-distance passenger and goods transport; creates demand for battery charging/swapping infrastructure
Key Challenges	High vehicle/battery cost, charging infrastructure gaps, safety & standards, battery quality/recycling, financing, and grid integration





Government Policy & Regulatory Framework

🚗 **Electric Motor Vehicle Registration & Movement Policy 2023** — BRTA

⚡ **Eclectic Vehicle Charging Guideline 2022** — Power Division

☀️ **Renewable Energy Policy 2025** — supports renewable-energy integration

💰 **Fiscal & Tax Incentives** — EVs, e-bikes and EV-related manufacturing

🏢 **Building Energy Efficiency Framework** — provisions for EV charging

Institutional Framework

BRTA: vehicle registration and road-operation requirements

SREDA: energy efficiency, EV charging and renewable-energy coordination

Power Division & utilities: electricity supply and grid integration

NBR: taxation and fiscal measures



EV Fiscal & Investment Incentives

💰 Import Tax Concessions

Reduced duties/taxes to make EV imports more affordable.

🚌 Electric Bus & Truck Incentives

Duty/tax concessions to support **local manufacturing** of e-buses and e-trucks.

🚲 E-Bike VAT Incentives

VAT exemptions/concessions for **e-bike manufacturing**.

🔋 Battery Manufacturing Incentives

VAT and customs concessions for **lithium/EV battery production**.

🏭 EV Manufacturing Incentives

Customs concessions for **local 3- & 4-wheeler EV manufacturing**.

🌱 Policy Direction

Shift from EV import support toward **local EV and component manufacturing**.

Bangladesh is increasingly using tax and customs incentives to promote EV adoption and build a domestic EV manufacturing ecosystem.



EV Charging: Grid Impacts & Management Solutions

Potential Grid Impacts

📈 Peak Demand

Simultaneous charging can increase system peak load.

⚡ Transformer Loading

High-power/clustered chargers can overload distribution transformers.

📉 Voltage Quality

Rapid changes in charging load may cause voltage drops and power-quality issues.

🏗️ Network Reinforcement

Additional transformers, feeders and substations may be required in high-EV areas

Grid Management Solutions

☐ Smart Charging

Schedule charging during off-peak periods.

⚙️ Managed Charging

Utility/operator controls or optimizes charging based on grid conditions.



Proposed EV Charging Infrastructure Development

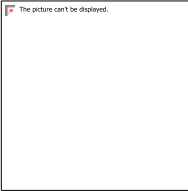
Phase 1 — 2026–2028

- 🏙️ Divisional Cities & Major Highways
- ⛽ Fast Chargers at Selected Fuel/CNG Stations
- 🏢 Government Offices & Public Facilities
- 🛒 Commercial & Destination Charging

Phase 2 — 2028–2030

- ⚡ High-Capacity Highway Charging
- ⚡ DC Fast/Ultra-Fast Charging Corridors
- 📍 Optimal Charger Spacing & Corridor Planning
- ☀️ Solar + Battery Storage Integration





EV Charging Infrastructure Architecture – Bangladesh

Grid / Solar PV → Distribution Network → Transformer → Metering & Protection → EV Charger → EV

⚡ **Grid Connection** – Distribution utility supply

☀️ **Solar PV Integration** – Rooftop/ground-mounted solar for charging

🔋 **Battery Storage** – Store solar energy and support peak-demand management

⚡ **Transformer & Distribution Network** – Capacity based on charging demand

🛡️ **Protection & Safety** – Earthing, breakers & surge/leakage protection

🚗 **EV Charger** – AC/DC charging

📱 **Communication & Payment** – Authentication, metering & payment

🔍 **Smart Charging** – Optimize charging based on grid/solar availability

☁️ **Backend System** – Monitoring, billing & charger management



Grid Impact of EV Charging ⚡

Potential Grid Impacts

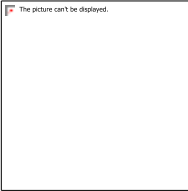
- **Peak Demand:** Simultaneous charging can increase system peak load.
- **Transformer Loading:** High-power/clustering chargers can overload distribution transformers.
- **Voltage Quality:** Rapid changes in charging load may cause voltage drops and power-quality issues.
- **Network Reinforcement:** Additional transformers, feeders and substations may be required in high-EV areas.

Grid Management Solutions

- **Smart Charging:** Schedule charging during off-peak periods.
- **Managed Charging:** Utility/operator controls or optimizes charging based on grid conditions.

Unmanaged EV charging can increase local peak demand and distribution-system stress; smart and managed charging can turn EVs into a flexible grid resource.





Renewable Energy + EV Charging

- ☀ **Rooftop Solar** – Generate renewable electricity at charging locations.
- ⚡ **Solar-Powered Charging** – Directly supply EV chargers with solar energy.
- 🔋 **Battery Energy Storage (BESS)** – Store solar energy and reduce peak-grid demand.
- ↻ **Net Metering** – Enable eligible solar systems to exchange electricity with the grid under applicable rules.
- 🌿 **Green Charging** – Increase the share of renewable electricity used for EV charging.
- **Policy Support** – Power Division's EV charging framework encourages renewable-energy integration in charging and battery-swapping facilities.

Integrating solar PV, battery storage and smart charging can reduce grid pressure and increase the environmental benefits of EVs in Bangladesh.



EV Charging Business Models for Bangladesh

Business Model	Potential Application in Bangladesh
⚡ Utility-Enabled Public Charging	Utilities provide grid access, strategic sites, and technical support, while private-sector partners finance, build, and operate charging stations.
🏢 Private Charging Operators	Independent companies invest in, operate and monetize charging networks
⛽ Fuel-Station Charging	Existing fuel/CNG stations add DC fast chargers along major highways
🛍️ Destination Charging	Shopping malls, hotels, offices and parking facilities provide charging
🚌 Fleet & Depot Charging	Dedicated charging for buses, logistics vehicles, taxis and government fleets
🏠 Home & Workplace Charging	AC charging for private EVs at residences and workplaces
❓ Public–Private Partnership (PPP)	Government provides enabling infrastructure/policy while private sector invests and operates

Bangladesh should adopt a diversified charging business model combining utility, private-sector, fuel-station, destination, fleet and PPP investment.



Bangladesh Government Initiatives for EV Charging & Electric Buses

EV Charging Guideline

SREDA established a framework for **EV charging infrastructure**.

Charging Station Certification

Technical **certification process** established by SREDA.

Grid Coordination

EV charging integrated into **power-system planning**.

Building Charging

EV charging provisions incorporated into **building standards**.

Clean Transport

National Air Quality Plan promotes **cleaner transport & EVs**.

Electric Bus Deployment

Plans target **1,400 electric buses**, increasing demand for **charging & grid capacity**.



**THANK YOU
FOR
LISTENING
PATIENTLY**

