Shenzhen Bus Group
Electrification

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About Shenzhen

- Population: 25 Million
- Universities: 18
- Area: 1990 KM²
- GDP: $350 Billion
About SZBG

- Staff: 26,001
- Total Fleet Size: 12,669
- Annual Passenger Capacity: 800,000,000

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- Shenzhentong Travel Card
  Issued: 40,000,000
  Annual Transaction: US$1,000,000,000

- Total Depot Area: 945,000 m²
- Charging Stations: 107

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Electrification Path

New Energy Bus Trial
10 Hybrid Buses
2008

Electrification
6053 Electric Buses
3056 Electric Taxis
2010

Electric Vehicle Trial
137 Electric Buses
50 Electric Taxis
First Charging Station
2017

Charging Infrastructure
Charger-Bus Ratio: 1:4
333 Chargers for Taxis
2017

Charging Technology Development
Grid-Style Fast Charging
2016
Current Fleet Size

**Bus Fleet**
5928

**Taxi Fleet**
5807

**Other Vehicle**
934
About Our Fleet

Most Popular Model: BYD K8
Battery Capacity: 291kWh
Passenger Capacity: 39 Seats
Charging: DC
  0-342A
  50-750V
Charging Regime: At Depot
  Overnight
Power Consumption: 0.9kWh/1km
About Our Fleet

Next Dominating Model: BYD K7 & Skywell EV4
Smaller 8.5m and 6m Buses

Battery Capacity: 253kWh
Passenger Capacity: 16/10 Seats
Charging: DC 0-342A 50-750V
Charging Regime: At Depot Overnight
Power Consumption: 0.6kWh/1km
Fleet Operation Management

Vehicle Specific Technical Archive

Route Specific Operation Handbook
Fleet Operation Management

- Operation Monitoring
- Safety Monitoring
- Service Monitoring & Analysis
Safety Management

Advance Driving Assistance System

- Detecting Incoming Object
- Pedestrians, Vehicles, Fallen Objects
- Detection
- Camera
- Notification System

- Identification System
- Database → Algorithm
- Identification
- Database
- Database (archive)

- Determine Level of Threat
- Database
- Algorithm
- Threat Level

- Waring the Driver
- Threat Level
- Wireless Transmission
- Driver Terminal
- Audio Notification
- Driver Reacts
Safety Management

Driver Behavior Monitor

Archiving and Learning

Artificial/Deep Learning Algorithm

Determining Compliance of Regulation

Matching Preset Behavior Parameter

Driving Behavior Collection
Safety Management

Driver Behavior Monitor
Safety Management

High-risk Location Overview
(blue: regulation violation, red: accident)

Fleet Safety Training
Charging Infrastructure

![Image of charging infrastructure]

**Charger Count**

- 45kw: 14
- 60kw: 20
- 100kw: 93
- 120kw: 96
- 150kw: 851
- 160kw: 17
- 180kw: 329
- 240kw: 2

Legend:

- 45kw
- 60kw
- 100kw
- 120kw
- 150kw
- 160kw
- 180kw
- 240kw
Charging Infrastructure

Charging Terminal Total Output: 80 to 380kW
Charging Cables: 1 to 4

Centralised Dynamic Charging:

Flexible/Controlled Power Output
Simple Maintenance
Efficient Charging & Management
Charging Management
Charging Service

Overnight Charging
Electric buses will be charged to 100% SOC overnight to fully use the trough period electricity.

Opportunity Charging
Taxis will be charged to 100% between two shifts at appropriate charging stations.

Mid-day Top-up
According to a bus-specific charging regime, buses can be charged mid-day to a pre-determined SOC level.
Service Expansion

- UDian Bus
- U+ Bus
- Metro Connection
- Airport Express
THANK YOU