Shenzhen Special Economic Zone Since 80’s
Shenzhen SEZ Present

- Population: 13 Million
- Area: 1990 km$^2$
- GDP: $350$ Billion
- Ranked 1$^{st}$ in Business Environment In China
- Colleges & Universities: 18
- Transportation:
  - 1 Airport
  - 9 Passenger/Freight Ports
  - 6 Train Stations
  - 7 Boarder Check Points (Only city in China with Sea, Air and Land checkpoints)
  - 8 Metro Lines
  - 977 Bus Routes w/ over 10,000 Buses
  - 20,000 Taxis
About SZBG

Company Asset

Staff: 27,545

Fleet Size: 12,769

- Urban buses: 6028
- Taxis: 5807
- Cross-border, on-demand and tour vehicles: 934

Annual passenger capacity: 800,000,000 person-times

Charging stations: 104

- Chargers: 2,638

Depots: 945,000 sq.m

- Self-owned station area: 250,000 m²
- Rented station area: 695,000 m²

Shenzhen Tong

Shenzhen All-purpose Card

- 40 million cards
- 12 million active users
- Annual transaction amount of RMB 6 billion
About SZBG
Largest All Electric Public Transportation Operator In the World

- Taxi
- Urban Bus
- Custom Bus
- Micro Bus
- School Bus
- Tour Bus
- Cross-Border Bus
- Cross-Border Truck
- Vehicle Rental
### Process of Electrification

<table>
<thead>
<tr>
<th>Event</th>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUS</strong></td>
<td><strong>In May 2008</strong></td>
<td>10 hybrid buses.</td>
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<td></td>
<td><strong>In July 2011</strong></td>
<td>137 electric buses.</td>
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<td><strong>In June 2017</strong></td>
<td>6053 buses became electric buses.</td>
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<tr>
<td><strong>TAXI</strong></td>
<td><strong>In May 2010</strong></td>
<td>50 electric taxis.</td>
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<td><strong>In Dec. 2017</strong></td>
<td>3,056 electric taxis.</td>
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<td><strong>In Dec. 2018</strong></td>
<td>Shenzhen taxi electrified.</td>
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<tr>
<td><strong>CHARGING</strong></td>
<td><strong>In June 2010</strong></td>
<td>First charging station.</td>
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<td></td>
<td><strong>In Apr. 2016</strong></td>
<td>&quot;grid-type fast charging&quot; technology</td>
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<tr>
<td></td>
<td><strong>In Dec. 2018</strong></td>
<td>333 chargers for taxis.</td>
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Benefits of Electric Buses
Benefits of Electric Buses

Diesel Bus
(US$112,000)

- Labor Cost: $11,400
- Energy Cost: $8,400
- Repair Cost: $4,500
- Depreciation Cost: $2,080
- Other Cost: $6,900

Electric Bus
(US$98,400)

- Labor Cost: $10,400
- Energy Cost: $10,800
- Repair Cost: $2,200
- Depreciation Cost: $8,100
- Other Cost: $6,900
Technical Standardisation of Electric Buses

- Minimal vehicle maneuvering
- Full use of trough period electricity
- Flexible charging
  - 10.5-metre buses
  - DC fast charging
  - Patented grid chargers
- One charger/4 buses
- Land efficiency
Technical Standardisation of Electric Buses

Intelligent Dispatch Centre

E-bus maintenance

Charging service
• SZBG owns 2 taxi companies
• 5807 taxis
• 21.3% of the total taxis (22,000) in the city
• Taxi chargers: 933
• First pure electric taxi company in the world
• Management model for pure electric taxi business combining OEM and operator
• Global media and commercial interest
Comprehensive Charging Stations

One-stop stations to serve the passengers, drivers and taxis

For Consumer
- Convenience services
- Other onboard services
- Discover other needs

For Driver
- One-stop taxi fleet
- Driver dining service
- Driver life leisure

For Taxis
- Charging service
- Maintenance services
- Power storage
On-Demand Bus

Start time: 2016

Line: 989

App-based Customer/Commuters

Service mode: Fixed route, fixed time (peak hour), Fixed fare

40 Seats / bus
U+ Minibus

10 Seats
Running time: Off peak
Dynamic route
No fixed Route
No fixed schedule
On-Demand Bus

7 Cities

70% Attendance rate

500K Registered users

1650 Lines

1602 Passengers per 1000 km

50K Active users per day
Autonomous Driving Technologies

An Autonomous Driving Bus Trails that Operated over 20,000km without Incidents under Harsh Weather Conditions
Thank You!

Hallieliao@szbus.org