

Electrification of Bus

The Shenzhen Bus Group Experience

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Shenzhen Special Economic Zone Since 80'



Shenzhen SEZ Present

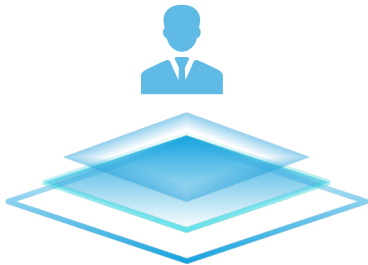
- **Population: 13 Million**
- **Area: 1990 km²**
- **GDP: \$350 Billion**
- **Ranked 1st in Business Environment In China**
- **Colleges & Universities: 18**
- **Transportation:**
 - **1 Airport**
 - **9 Passenger/Freight Ports**
 - **6 Train Stations**
 - **7 Boarder Check Points (Only city in China with Sea, Air and Land checkpoints)**
 - **8 Metro Lines**
 - **977 Bus Routes w/ over 10,000 Buses**
 - **20,000 Taxis**



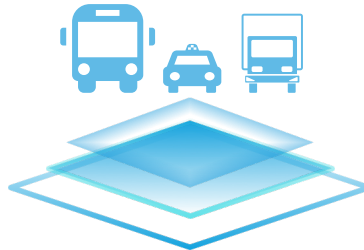
About SZBG

Company Asset

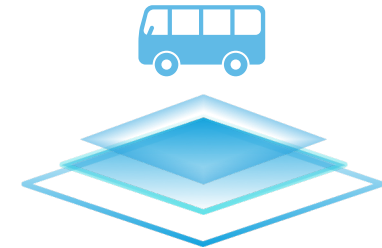
Staff : 27,545



Fleet Size : 12,769



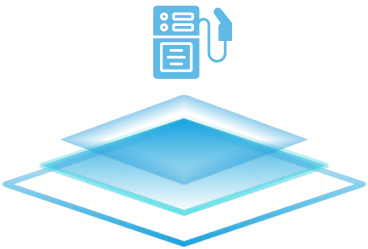
**Annual passenger capacity:
800,000,000 person-times**



Urban buses : 6028 Taxis : 5807

Cross-border, on-demand and tour vehicles : 934

Charging stations : 104



Chargers: 2.638

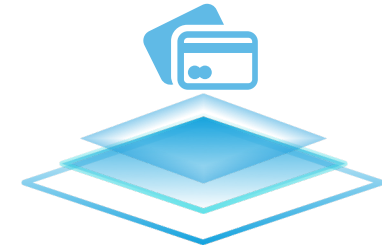
Depots: 945,000 sq.m



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

BUS

- In May 2008 - 10 hybrid buses.
- In July 2011 - 137 electric buses.
- In June 2017 - 6053 buses became electric buses



TAXI

- In May 2010 - 50 electric taxis.
- In Dec. 2017 - 3,056 electric taxis.
- In Dec. 2018 - Shenzhen taxi electrified.



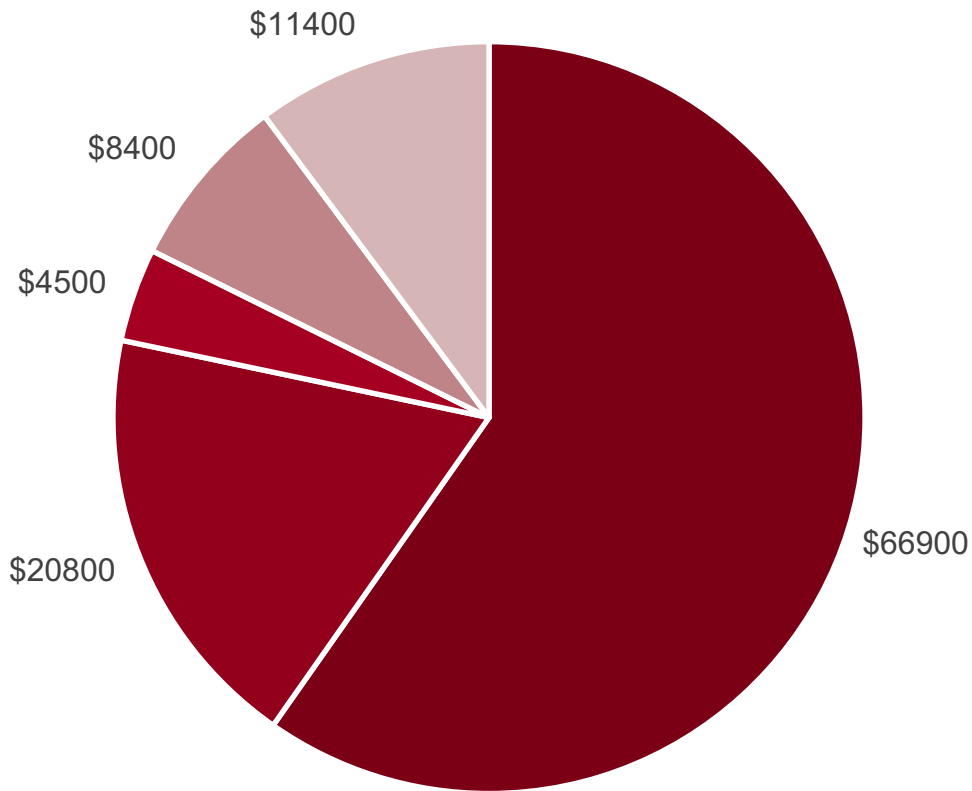
CHARGING

- In June 2010 - first charging station.
- In Apr. 2016 - "grid-type fast charging" technology
- In Dec. 2018 - 333 chargers for taxis.

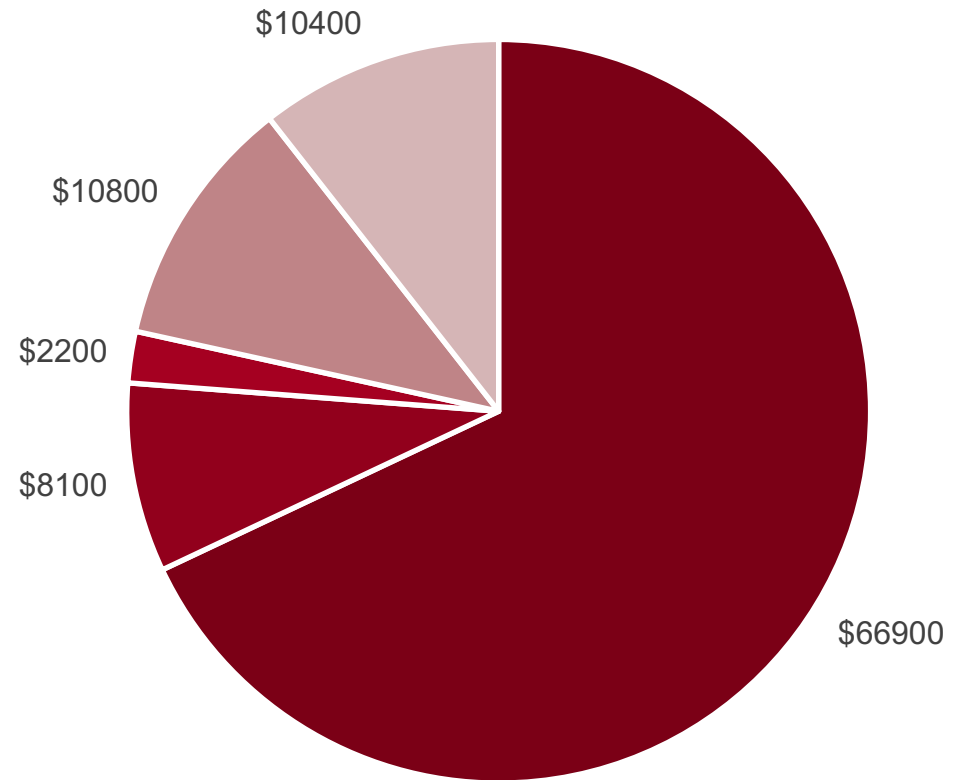


Benefits of Electric Buses

Diesel Bus
(US\$112,000)



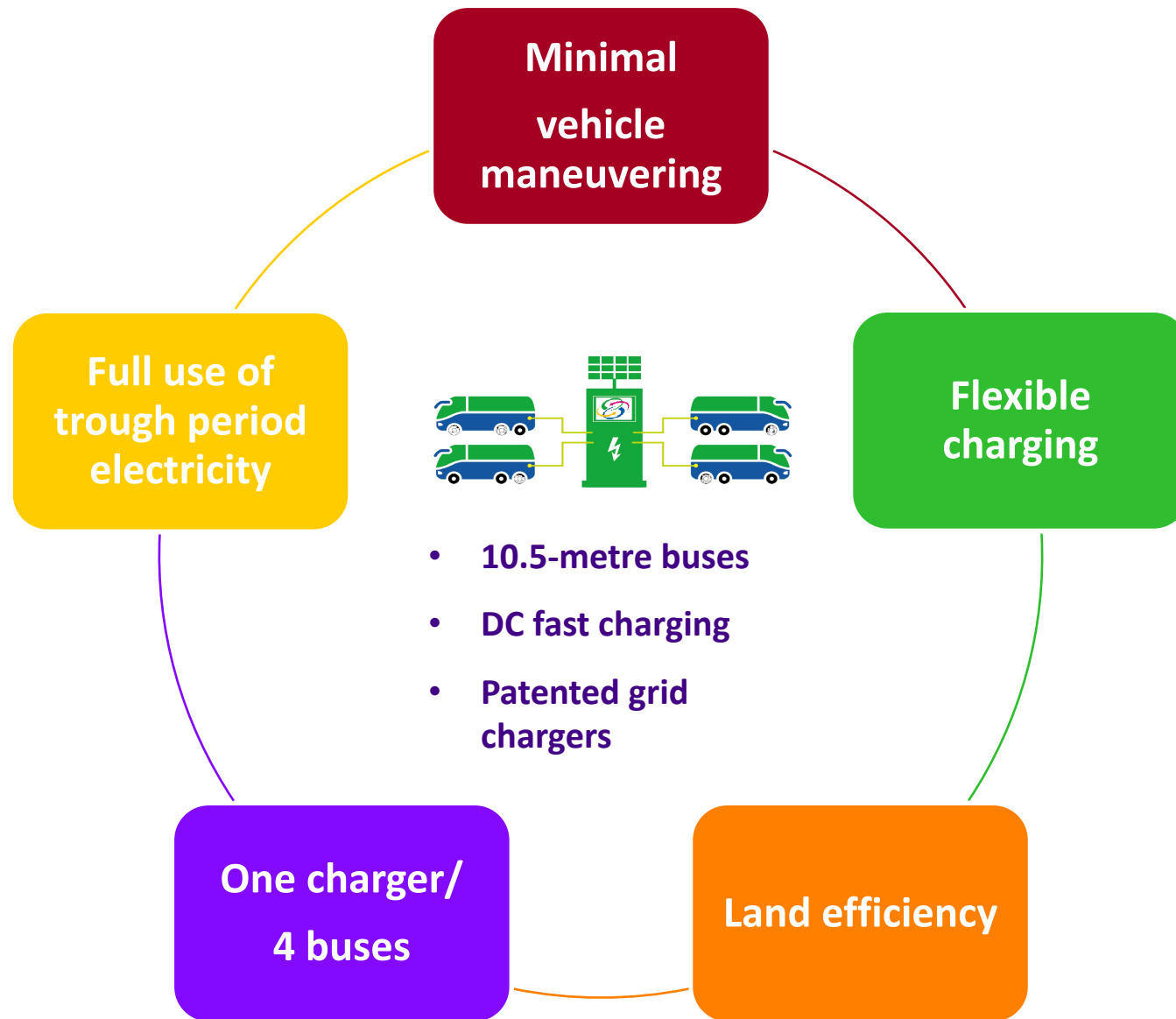
Electric Bus
(US\$98,400)



■ Labor Cost ■ Energy Cost ■ Repair Cost
■ Depreciation Cost ■ Other Cost

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Technical Standardisation of Electric Buses



Technical Standardisation of Electric Buses

Intelligent Dispatch Centre



E-bus maintenance



Charging service



Electric Taxis

- **SZBG owns 2 taxi companies**
- **5807 taxis**
- **21.3% of the total taxis (22,000) in the city**
- **Taxi chargers: 933**



Pengcheng Electric Taxi

- 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



SHENZHEN BUS



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

HAYLION 海梁科技
Technologies

International Cooperation

World Bank Electrification Report



SHENZHEN BUS



THE WORLD BANK

Charging Studies



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Thank You!

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