



Jointly Build a High Quality and Sustainable Smart Charging Network

**——Huawei FusionCharge Liquid-Cooled Ultra-fast
Charging Solution**



Key charging-related parameters of Minibus Taxi

Item	Unit Data
Battery Type	LFP Battery (Lithium Iron Phosphate Battery)
Battery Capacity	86.1 / 60 kWh
Endurance (NEDC)	400 / 300 km
Charging Time	DC charge: 2h
Operation characteristics	Single trip with long mileage (approximately 200-300 km per day) and short stopover times.

EV12 VAN(RHD) - Electric



Key charging-related parameters of Bus

Parameter Item	Specification / Details
Power Battery pack	CATL, LFP, 175KWH
PDU	CATL
A/C (Cooling System)	Roof mounted, cooling and heating integrated with battery cooling system
Charging receptacle	GB standard, single Ports
Common accessories	120 kW DC charging pile ,1-2h
Range	200–300 km



Business Compatibility: support PV, ESS and Unified operation & device management platform

PV, ESS, charger, and platform: E2E in-house development and full-link joint commissioning



Three benefits

Superior quality

- One-for-all design, one-click site deployment, and easy O&M for a long time
- Seamless service warranty

Maximized revenue

- PV+ESS+charger intelligent scheduling, maximizing power resource utilization and achieving "low-cost power generation and high-price sales"
- Power pooling, maximizing electricity utilization

Higher safety

- PV+ESS+charger, E2E in-house development and full-link joint commissioning
- From components to solutions, 200+ scenario-based tests to eliminate safety risks; anti-backflow to prevent sudden power changes

Huawei EV Charger Solution for Minibus Taxi

Site selection

- Taxi Ranks
- Highway Interchange
- Gas station or business center

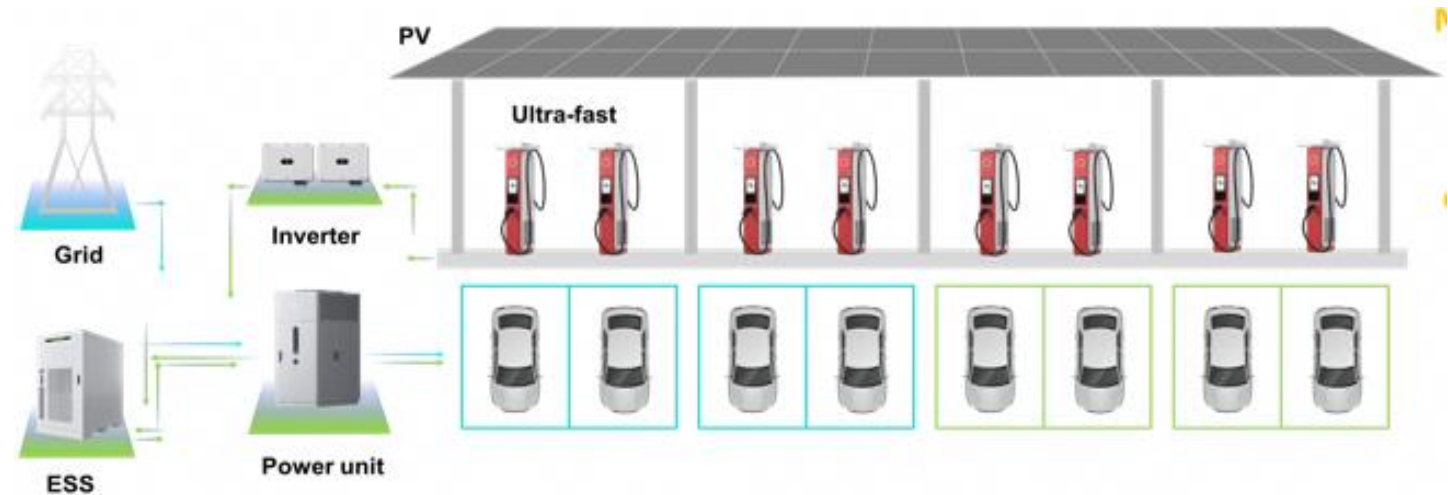
Operation Scenario

- Scenario A: Centralized charging at night
- Scenario B: Charging during daytime when waiting for passengers is not required.

Power pooling

- power unit+ ESS
- Improving Station Power utilization

Huawei: **PV+ESS+Charger with power pooling**,
more charging spots and higher power for diversified scenarios



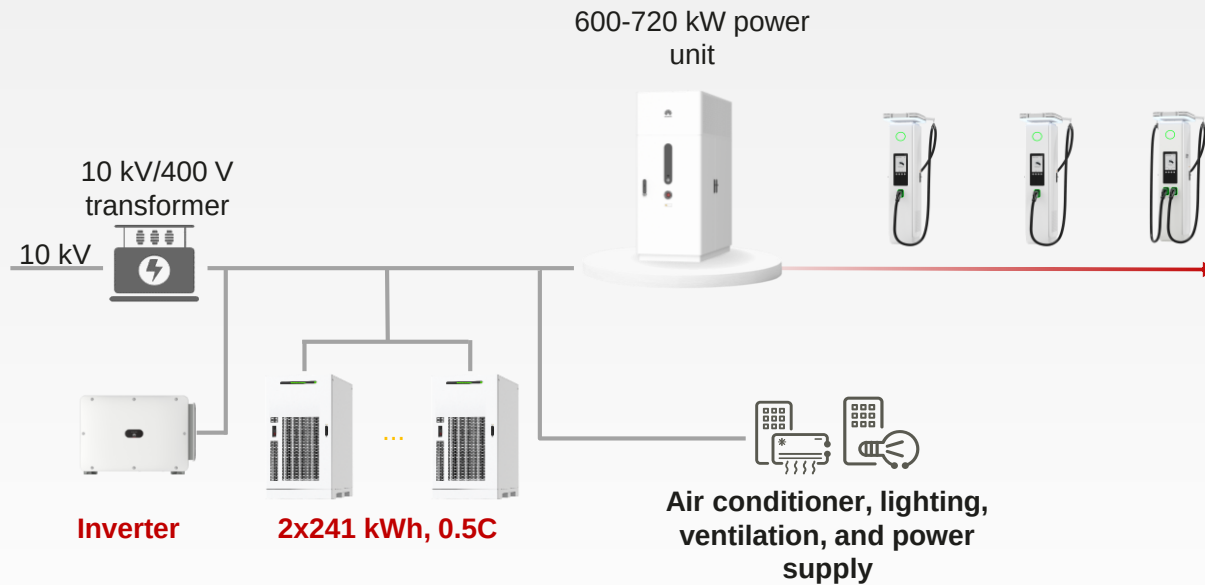
Reliable Design

- Quality Verification in all Scenarios
- Lifetime up to 10 Years
- Protecting Clients' Investment

Project Overview of Minibus Taxi Solution

PV+ AC 241kwh ESS+charger solution

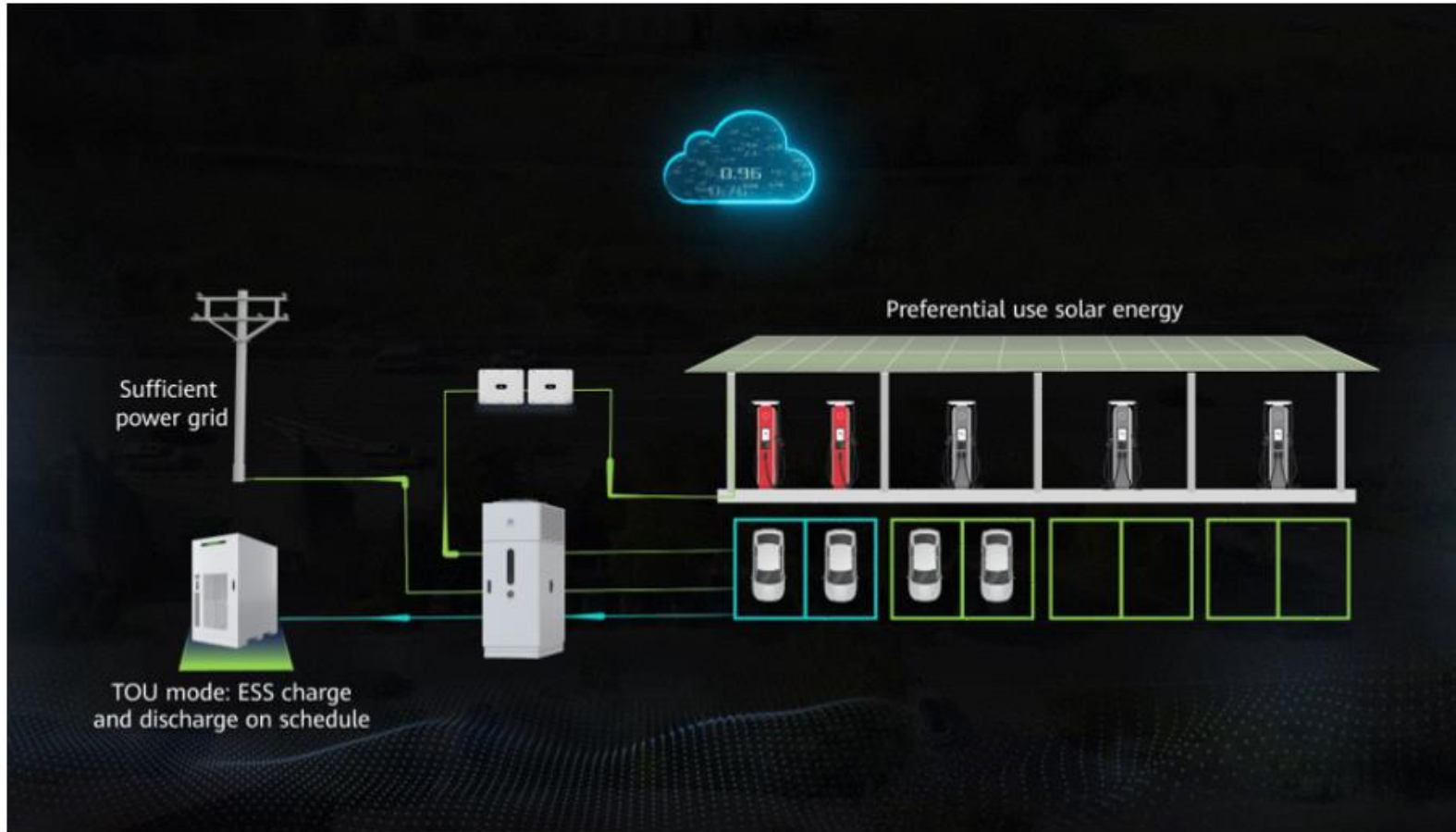
Configuration: inverter + 241 kWh AC ESS + 600-720 kW power unit



Core System BOQ

Device	Model	Quantity	Unit Price
Charging Host	Huawei 240-360kW Power Cabinet	1	\$28000
Charging Terminal	Huawei Terminal	3	\$8000
Charging Connector	Huawei Charging Connector	6	\$1000
ESS (optional)	LUNA2000-241kWh	4	\$38000
PV Inverters (optional)	Huawei SUN2000-100KTL-H2	4	\$3350
- The configuration supports in-depth charging (from 10% to 95%) for about 32 minibuses within 8 hours at night, and supports fast charging for about 48 minibuses within 6 hours during off-peak hours in the daytime. - Inverter and energy storage are optional, used for off-grid operation when no grid power is available, or to reduce electricity costs by considering TOU (Time-of-Use) mode.			

Unified PV+ 215kwh ESS +EV charger Solution for BUS



TOU

- Price optimization
- Demand response

Maximum PV utilization

- The yielding of PV be 1st priority to be utilized

TOU + Peak shaving

- Optimize the electricity price to attract more customer

Unified management platform

- FusionCharge platform to manage PV/ESS/EV charger

Dynamic power limitation

- Avoiding overload for the transformer

<2s System anti-reverse current

- Avoiding trip risk for the circuit breaker
- Avoid current feedback to the grid

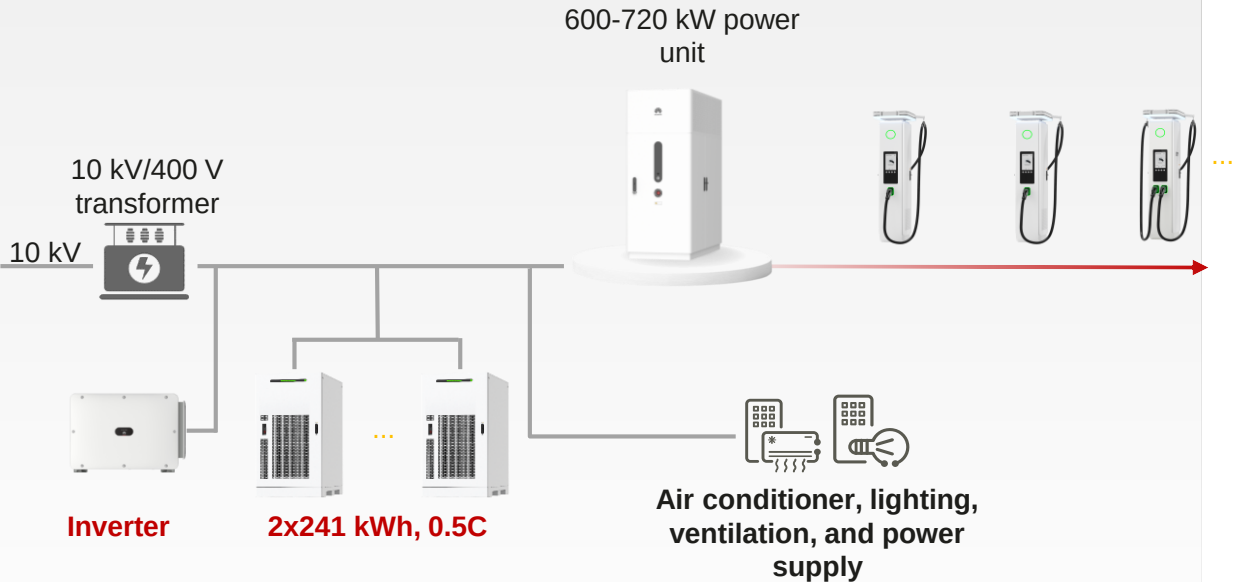
ESS response time<50ms

- Fast response to the EV charging and grid requirement

Project Overview of Bus Solution

PV+ AC 241kwh ESS+charger solution

Configuration: inverter + 241 kWh AC ESS + 600-720 kW power unit

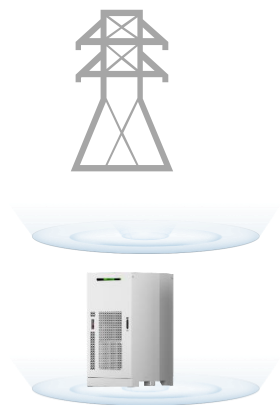


Core System BOQ

Device	Model	Quantity	Unit Price
Charging Host	Huawei 600-720kW Power Cabinet	1	\$50000
Charging Terminal	Huawei Terminal	3	\$8000
Charging Connector	Huawei Charging Connector	6	\$1000
ESS (optional)	LUNA2000-241kWh	4	\$38000
PV Inverters (optional)	Huawei SUN2000-100KTL-H2	4	\$3350
1. If all buses are operating during the day and returning to the depot at night, one 720 kW power unit with six charging connectors can perfectly support the daily O&M of 30 to 32 buses. 2. If some of the buses operate on medium- and short-distance intercity routes, and need to enter the station during the day, this can support the daily charging of 36 buses.			

Stepwise Expansion for Future evolution

Grid capacity Expansion



Power unit evolution

600kW→720kW→2x 720kW in parallel



⑤ Remote OTA upgrade

Dispenser evolution

2x 500A



④ More connectors
4x500A



⑤ Big current CCS2
500A→600A→800A



⑥ MW-level charging

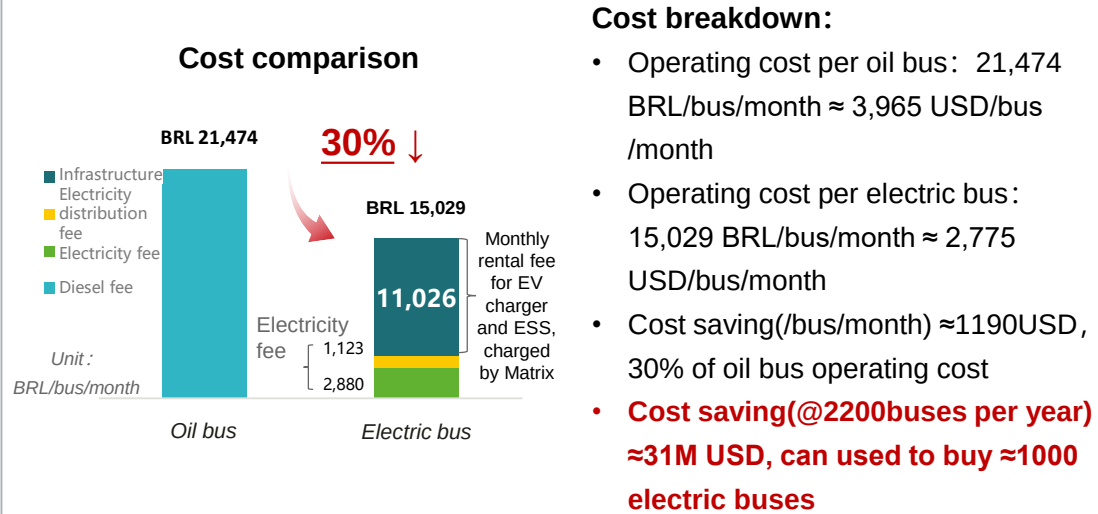


- Smooth grid capacity expansion to solve the deployment issues
- Power unit and dispenser evolution to support charging requirement evolution

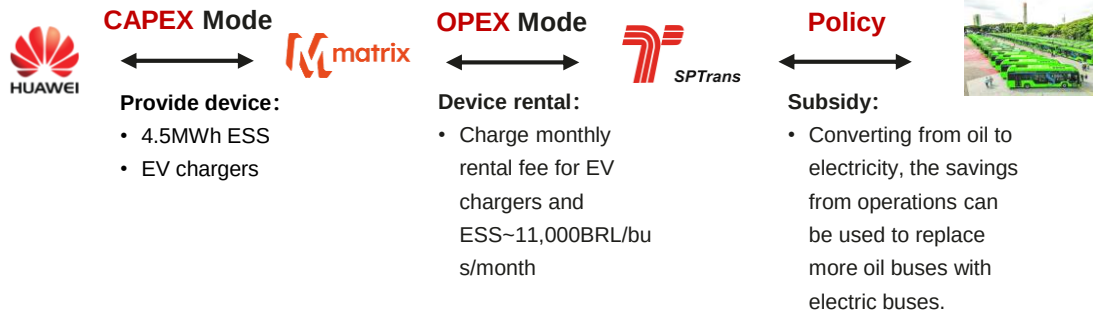
Sao Paulo, Brazil: Matrix bus charging station

Business mode analysis

1 Owner value: save 14k USD/year/bus (31M USD @2200 buses)



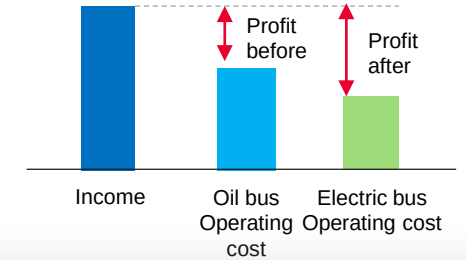
Business Model



Social value: contribute to a greener city

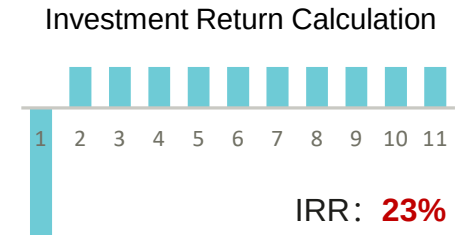
2 Site value: lowered operating cost accelerates bus electrification

- Value 1:** without transformer reconstruction, time to market(TTM) was shortened by 3 years;
- Value 2:** bus electrification lowers operating cost by 30%



3 EPC value: Device renting, IRR 23%

- Value 1:** annual revenue **291M BRL**, 10 year lease, **IRR 23%** (132k BRL/bus/year);
- Value 2:** **Finance lease without bidding, 100% site ownership**



4 Huawei value: ESS+EV charger creates new opportunities



- Value 1:** Huawei's 1st bus charging demo site overseas
- Value 2:** Build an cooperation mode among bus owners, investors and site owners

Planning: **44 sites including 500MWh ESS+100 power units**

Successful story: Public E-BUS Charging Station with Huawei Solution in Shenzhen and Guangzhou

Bus dedicated station

Shenzhen Bus-Splendid China Folk Village



- 1x600-720kW power unit
- 2 ultra-fast + 5 Fast
- Provide charging service for > 10 bus lines

passenger vehicles dedicated station

Guangzhou Bus-Yanling Industrial Park



- 1x600-720kW power unit
- 2 ultra-fast 6 Fast
- 24 hours open to public

Bus + passenger vehicles mixed station

Guangzhou Bus-Zhu Jiang New Town

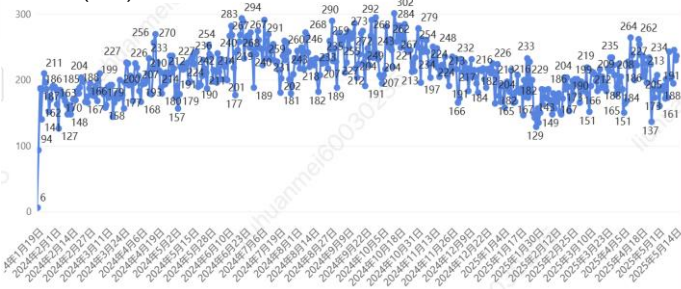


- 1x600-720kW power unit
- 2 ultra-fast 8 Fast
- Support both of bus and passenger cars

充电单元

99.874%	=	11558.925	/	11573.397
Power unit uptime efficiency(%)		Power unit total uptime (h)		Accumulated running time (h)
99.921%		99.874%		93.909%
One-time handshake successful rate(%)		Power unit uptime efficiency(%)		Power usage efficiency(%)
41.991%		11573.397		813.468
Grid capacity usage efficiency(%)		Accumulated running time(h)		Accumulated charging electricity(kWh)

Daily electricity charged per connector(kWh)



Daily electricity charged per connector compared to last month(%)

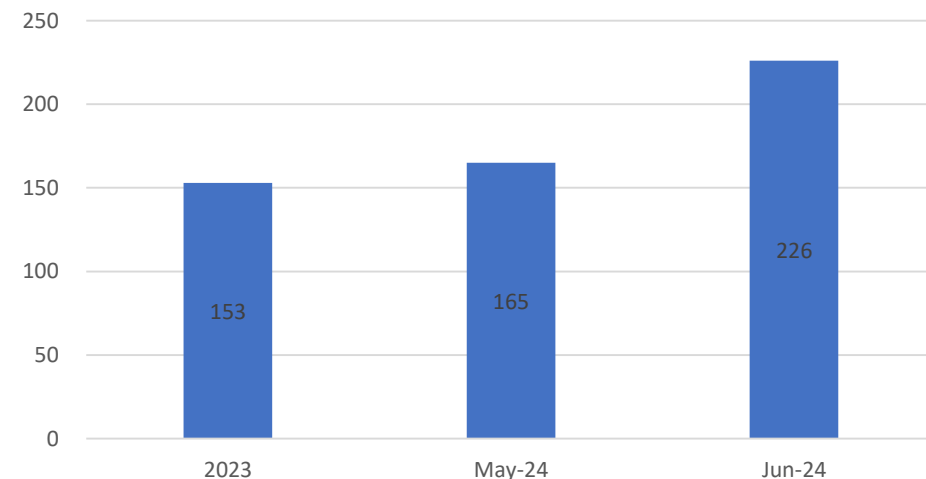
Month	Daily electricity charged per connector(kWh)	compared to last month(%)
2024年1	160	
2024年2	174	9%
2024年3	184	5%
2024年4	209	14%
2024年5	213	2%
2024年6	239	12%
2024年7	235	-1%
2024年8	233	-1%
2024年9	248	6%
2024年10	245	-1%
2024年11	229	-7%

Zhujiang new town bus charging station

- 15 charging spaces about 40 buses are charging here everyday.
- Transformer is 800kw. Charging post: 80 kW integrated dual gun x 4 (competitor), **Huawei liquid-cooled charger x 2, Huawei boost charger x 4.**
- The station is open to social vehicles for charging from 7am to 20am, and the rest of the time is for bus charging, which can
- After Huawei's liquid-cooled supercharged products were installed, the average daily charging electricity per gun increased from 153 kWh in 2023 to 226 kWh, increased by 47.7%.



Average daily charging electricity per gun



Thank you.