



SANY ● BATTERY SWAP SOLUTIONS AND PROMOTION OF ELECTRIC  
PRODUCTS

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# 三一换电解决方案及推广情况

2022-6

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# 1. 政策及行业趋势|Policies and Trends

世界各国积极出台政策大力发展新能源产业，燃油车进入“三限”时代

Governments have introduced policies to promote the development of new energy industry, fuel vehicles entered the era of restriction in sales, driving and registration

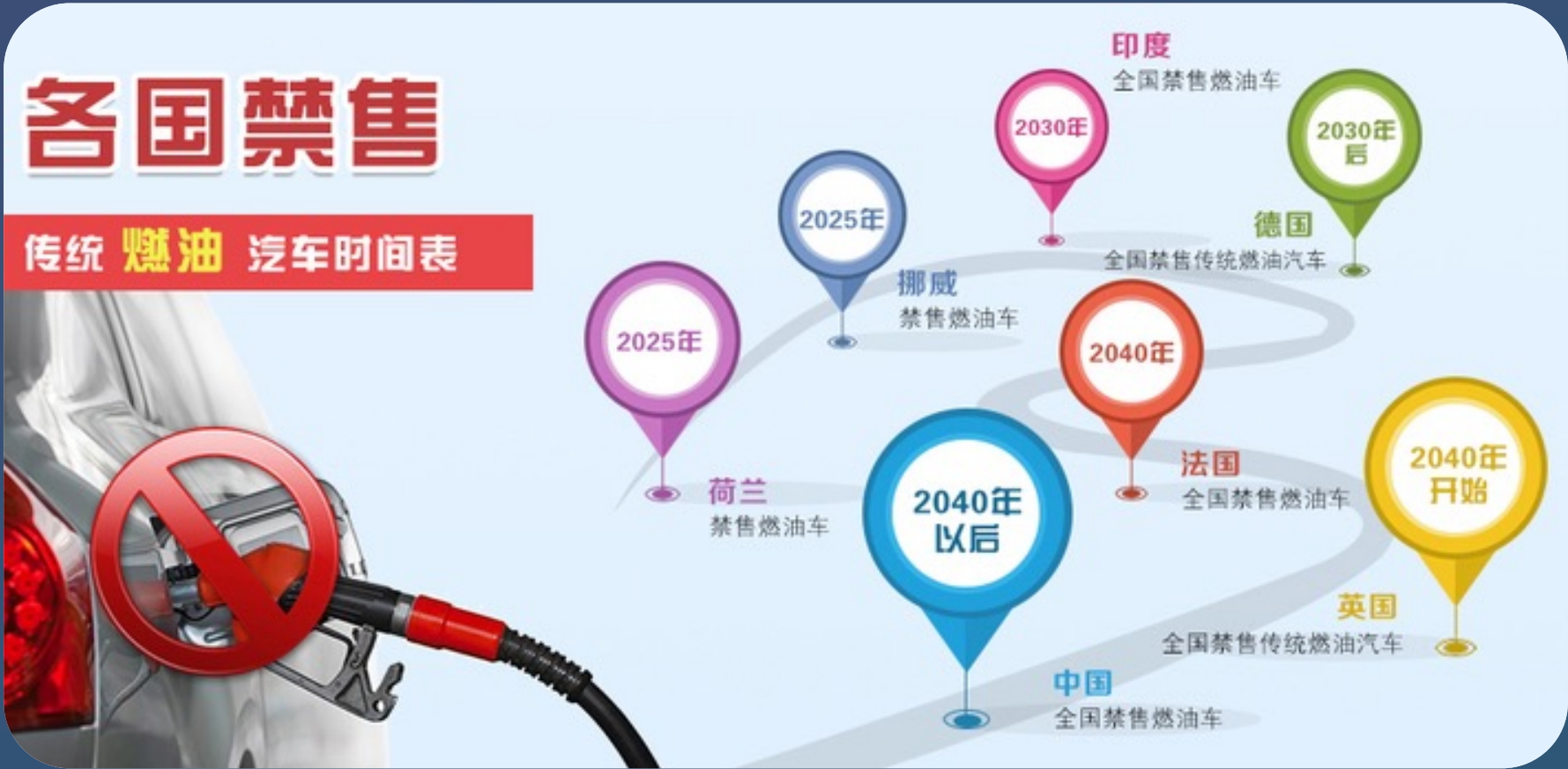
中国提出“2030年碳达峰，2060年碳中和”

China: Emission peak in 2030, Carbon neutralization in 2060



各国禁售燃油车

Countries of the world: prohibit sale of fuel vehicles

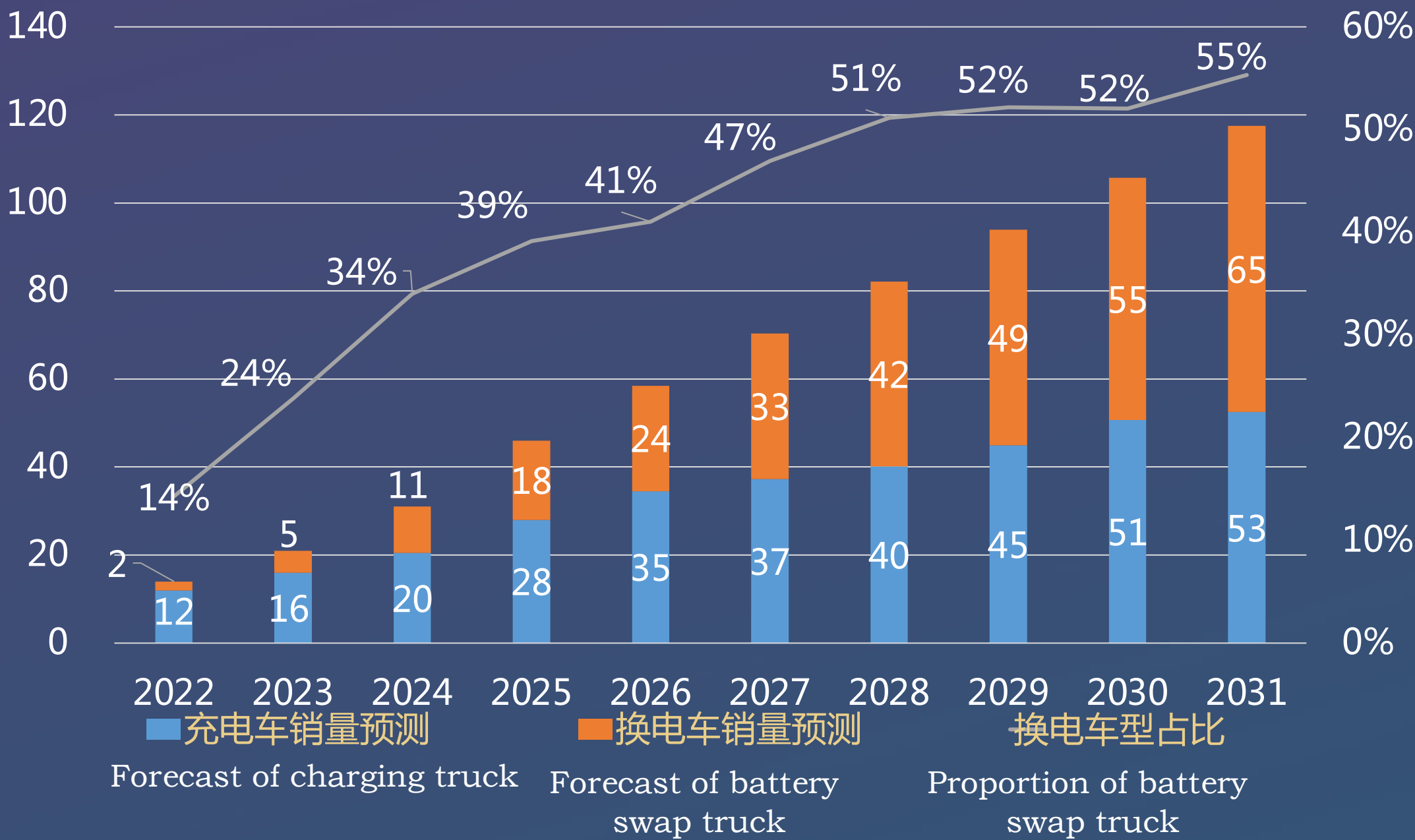


新能源专用车市场稳步增长，快速补能需求将爆发式呈现

Steady growth of new energy special vehicle market, the demand for rapid energy replenishment has exploded.

中国新能源专用车市场预测（单位：万台）

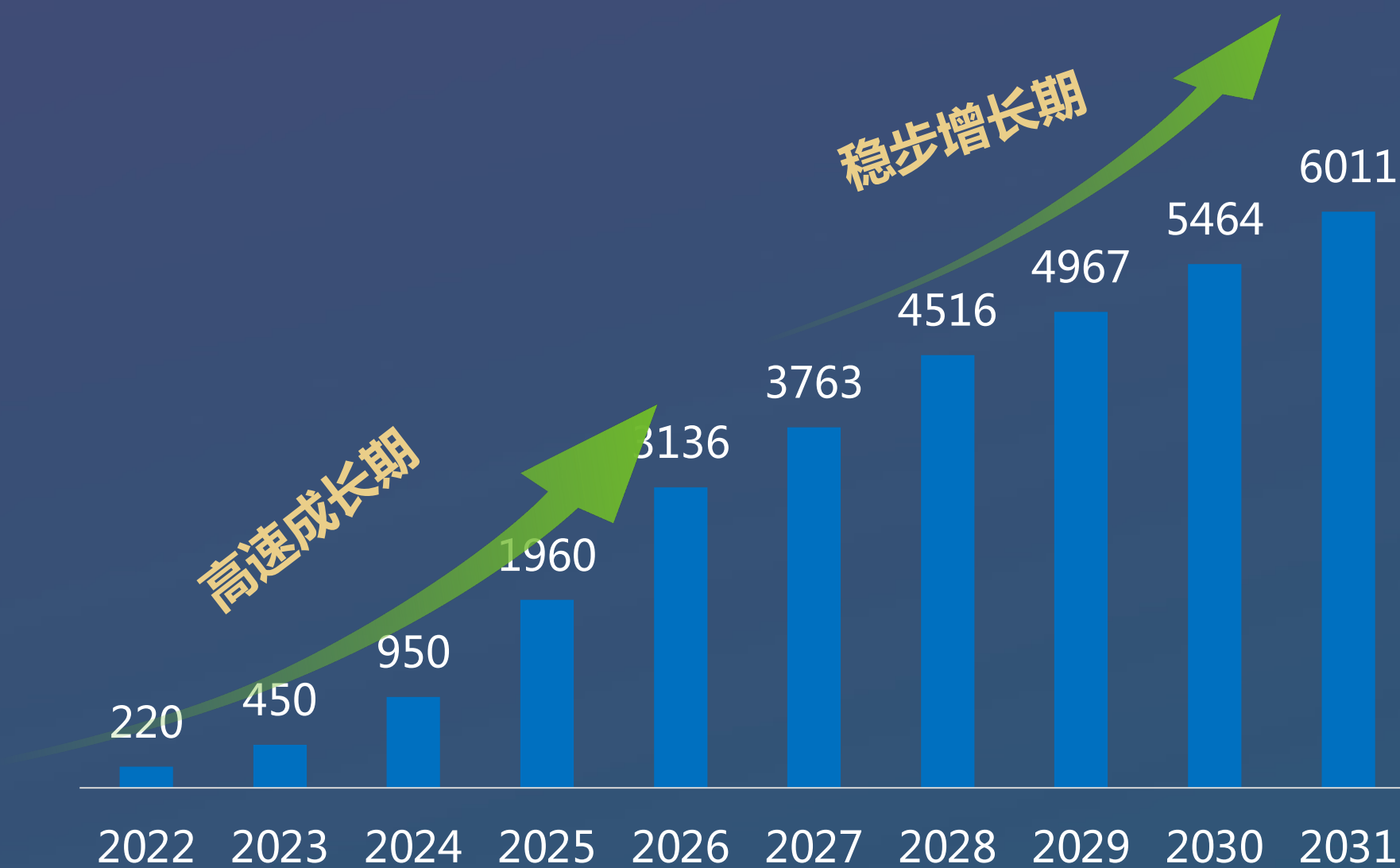
Market forecast of new energy special vehicles in China (unit: 10 thousand)



● 数据来源：依据亿欧智库、方正电新、中汽协内参（截止2025年数据）。考虑10%复合增长推测。

重卡换电站中国市场需求量预测（单位：座）

Market forecast of Electric heavy truck battery swap station in China



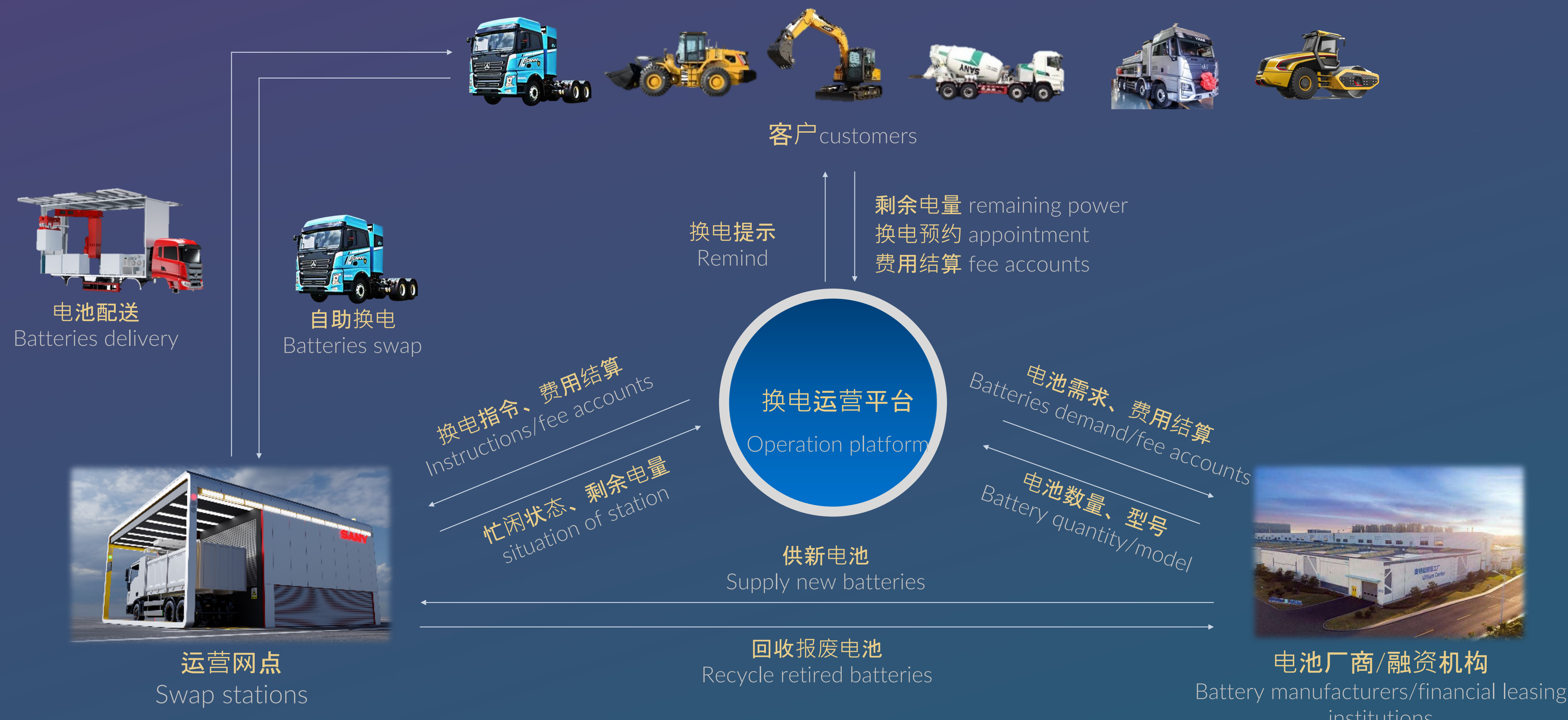
- 专用车：牵引车、矿卡、渣土车、搅拌车、物流车；  
special vehicle: trailer, mining truck, dumper truck, mixer truck, logistics truck
- 至2031年，中国市场预计换电式专用车存量约240万台，换电站需求约3万套（含存量）。  
By 2031, the number of special vehicles in China will reach 2.4 million, and the number of battery swap stations will reach 30,000.



## 2. 系统解决方案|Solutions

创新商业模式，实现四方共赢

Innovate business model, achieve win-win results for all parties





换电重卡产品

Battery swap heavy trucks



电动牵引车(江山超强版)

Electric trailer

1.9分钟换电  
满载百公里能耗≤170kWh  
最大爬坡≥30°  
加速时间：0-30Km/小时 < 4秒  
整备质量：12400kg  
Swap battery in 1.9 min  
Power consumption:≤ 170kWh per 100 kilometers (under full load)  
Maximum ramp angle: ≥30°  
Acceleration time: 0-30Km/h<4s  
Curb weight:12,400kg



电动自卸车(426重载版)

Electric dumper truck

1.9分钟换电  
续航里程120km  
最大爬坡≥30°  
整车总量21500kg  
Swap battery in 1.9 min  
Maximum ramp angle: ≥30°  
Range:120km  
Curb weight: 21,500kg



电动搅拌车(410)

Electric mixer truck

1.9分钟换电  
续航里程130km  
最大爬坡≥30°  
10方搅拌筒  
整备质量：14980kg  
Swap battery in 1.9 min  
Maximum ramp angle: ≥30°  
Range:130km  
Concrete loading capacity: 10m³  
Curb weight: 14,980kg



工程机械电动化产品  
Electric construction machineries

电动宽体自卸车  
Electric mining truck



电动挖掘机  
Electric excavator



电动压路机  
Electric road roller



电动汽车起重机  
Electric mobile crane



电动装载机  
Electric loader



电动正面吊  
Electric reach stacker





不断迭代升级，提升客户体验

Continuously upgrade and improve customer experience



智能换电站1.0

Intelligent swap station 1.0

三一集团自研的第一代换电站，采用视觉定位、三轴小车、柔性充电等技术。针对低温环境设计，具备适应寒区运营能力；启动换电方式可根据实际需要选择手动启动、扫码启动或全自动，换电时间5分钟。

The fixed station is the first generation battery swap station of Sany group, which adopts advanced technologies such as visual positioning, three-axis trolley and flexible charging; Designed for low temperature environment, it has the ability to adapt to cold area operation; battery swap mode can be manually started, code scanning started or fully automatic according to the actual needs. swap time is 5 minutes



智能换电站 2.0

Intelligent swap station 2.0

三一集团推出的二代换电站，采用集成化设计、结构简单，可快速移站。拥有占地面积小、建站迅捷特点；同时也具备适应寒区运营能力；启动换电方式有手动启动、扫码启动和全自动，可供选择，换电时间5分钟。

The integrated station is the second generation swap station self-developed by SANY group. It adopts integrated design, simple structure and can be transplanted quickly. It has the characteristics of small floor area and rapid station construction; At the same time, it also has the ability to adapt to the operation in cold areas; The startup and battery swap modes include manual startup, code scanning startup and full-automatic, which can be selected. swap time is 5 minutes.



智能换电站 3.0

Intelligent swap station 3.0

三一集团推出的第三代换电站，采用环形布局、双抓手换电机构；换电时间短,可实现90s换电；服务能力强，可以服务100辆车；可靠性高，万次换电0故障；自动化程度高，全过程自动化换电，无需司机下车操作。

It is the third generation fixed battery swap station developed by SANY group, which adopts ring layout and double gripper mechanism; Short swap time, which can realize battery swap in 90s ; strong service capability, can serve 100 trucks; high reliability, 99.99% success rate; The whole process is fully automatic, drivers doesn't need to get off the truck for operation.



## 多种换电产品，换电、送电服务兼顾，全方位助力重卡、工程机械换电

Lots of products for battery swap and battery delivery, to assist battery swap of heavy truck and construction machineries.



### 宽体车智能换电站

Intelligent battery swap station for mining truck

宽体车智能换电站是三一集团为宽体车开发的一款固定式换电站，电池采用环形布局、侧向换电机构；可在180s内为宽体车完成换电服务。

Intelligent battery swap station for mining truck developed by SANY group, which adopts ring layout and swap the battery on side; Short battery swap time, which can realize battery swap in 180s.



### 智能换电车

Intelligent battery swap truck

智能换电车是三一集团自研的一款移动式换电装备，可为工程机械、工程车辆等多种设备提供换电服务。

Intelligent battery swap truck developed by SANY group. It can use for heavy trucks and construction machineries' battery swap.



一体化运营平台，安心、放心、省心

Intelligent operation platform, monitoring battery condition and truck's position, intelligent dispatch

充电过程自检，大数据分析电池健康状况

Self-check battery during charging, analyze battery health

智能提醒换电、推送换电站位置并导航

Intelligent reminder, send the position of swap station to drivers, and navigate



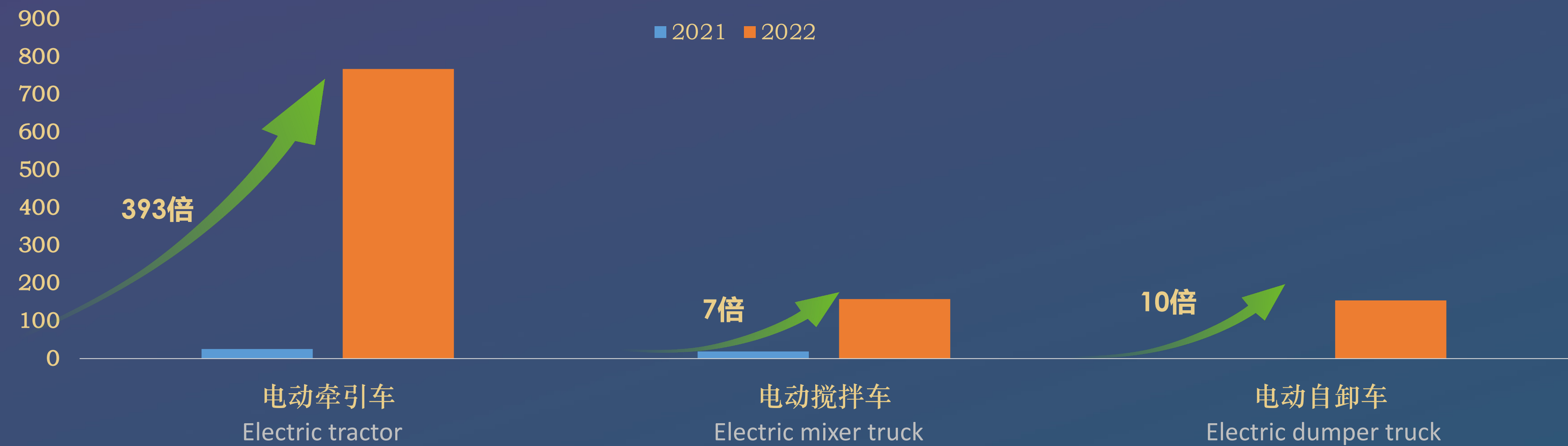


### 3. 产品推广情况|Promotion and Cases

中国电动重卡市场增长迅速，换电时代正加速到来

The electric heavy truck market is growing rapidly in China, and the battery swap era of vehicle is accelerating

1-4月份三一电动重卡累计销售数据（单位：辆）  
Cumulative sales data of Sany electric heavy truck from January to April





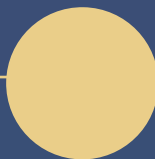
换电站市场日趋成熟，站点布局稳步推进

As battery swap station of heavy truck matures, we have steadily promote the layout the battery swap stations.

2020年

2021年

2022年



换电站立项

样站完成

已建站9座

建设中6座

规划中70座

Project approval of  
battery swap station

Complete sample  
station

9 stations have  
been built

6 stations under  
construction

70 stations under  
planning



我们已完成9座换电站建设并投入运营,其中固定换电站2座，集成式换电站3座，RGV换电站4座  
9 battery swap stations completed and put into operation, among them, 2 fixed swap stations,3 integrated swap stations,4 RGV swap stations

三一固定式换电站  
Sany fixed battery swap station



- 累计换电次数：3900余次  
Cumulative battery swap times: > 3,900 times
- 整站尺寸：20m × 8m × 7.5m  
Station size：20m × 8m × 7.5m
- 换电时间：300s  
Swap time：300S
- 启动方式：手动启动  
Start mode：manual

三一集成式换电站样站

Sany integrated sample battery swap station



- 累积换电次数：4300余次  
Cumulative battery swap times: > 4,300 times
- 整站尺寸：15m × 3.3m × 6.6m  
Whole station size：15m × 3.3m × 6.6m
- 换电时间：300s  
Swap time：300S
- 启动方式：手动启动  
Start mode：manual

内蒙塔拉壕固定站

Ta Lahao integrated battery swap station



- 累计换电次数：863次  
Cumulative battery swap times: > 863 times
- 2022年5月运营  
Operation in May 2022

河北邯郸集成站

Han Dan integrated swap station



- 累计换电次数：900余次  
Cumulative battery swap times: > 900 times
- 2022年5月运营  
Operation in May 2022

新疆八钢集成站

Xi jiang Ba Gang integrated swap station



- 累计换电次数：2800余次  
Cumulative battery swap times: > 2,800 times
- 2022年3月运营  
Operation in March 2022



最近6个月完成4座RGV换电站建设  
In the last 6 months, we completed 4 RGV swap stations

三一RGV换电站  
Sany RGV sample battery swap station



- 累积换电次数：20000余次  
Cumulative battery swap times: >20,000 times
- 整站尺寸：11.7m×10.5m  
Whole station size: 11.7m×10.5m
- 换电时间：90s  
Swap time: 90s
- 启动方式：全自动  
Start mode: fully automatic

四川成都RGV站  
Cheng Du RGV swap station



- 2022年5月运营  
Operation in May 2022

湖北鄂州RGV站  
Hubei E'zhou RGV swap station



- 2022年5月运营  
Operation in May 2022

山东淄博RGV站  
Shandong zibo RGV swap station



- 2022年5月运营  
Operation in May 2022



未来2个月将完成6座RGV换电站建设  
In the next 2 months, we will complete 6 swap stations



在建中

项目地点: 新疆哈密

Project location:  
Xinjiang Hami

It is expected to be put into  
trial operation in June 2022

预计2022年6月试运营



在建中

项目地点: 湖北武汉

Project location: Wu  
Han

It is expected to be operation  
in July 2022

预计2022年7月运营



在建中

项目地点: 江苏无锡

Project location: Wu Xi

It is expected to be operation  
in July 2022

预计2022年7月运营



在建中

项目地点: 山东济南

Project location: Ji  
Nan

It is expected to be operation  
in July 2022

预计2022年7月运营



在建中

项目地点 : 福建厦门

Project location: Xia men

It is expected to be operation  
in July 2022

预计2022年7月运营



在建中

项目地点 : 四川宜宾

Project location: Yi Bing

It is expected to be operation  
in July 2022

预计2022年7月运营

