Creating a green life with clean energy

ENERGY PROVIDER

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SFQ Energy Storage System Technology Co., Ltd

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About Us

Shenzhen Chengtun Group Co., Ltd., established in 1993, has been actively engaged in the development of metals such as nickel, cobalt, lithium, copper, and zinc. Anchored in the exploration and mining of mineral resources, the group includes two listed companies: Chengtun Mining (stock code: 600711) and Chengxin Lithium (stock code: 002240). With direct or indirect holdings in nearly 120 enterprises, the group boasts a workforce exceeding 12,000. Its operations span across major cities in China, including Beijing, Shanghai, Hong Kong, Guangzhou, Shenzhen, as well as regions like Yunnan, Guizhou, Sichuan, Fujian, Inner Mongolia, and extends globally to Singapore, the United Kingdom, Indonesia, and Africa.

Shenzhen Chengtun Group has consistently prioritized the development of new energy metals like nickel, cobalt, lithium, copper, and zinc. By effectively managing resources and expanding its industrial materials strategy, the company has achieved rapid business growth. Its ambition is to become one of the most competitive and dynamic enterprises in the new energy resource sector.

Founded in March 2022, SFQ Energy Storage System Technology Co., Ltd. operates as a fully-owned subsidiary of Shenzhen Chengtun Group Co., Ltd. This cutting-edge enterprise is dedicated to the research, development, production, and sales of energy storage systems. Its product range spans across diverse applications, including grid-side, portable, commercial and industrial, as well as residential scenarios.

Following the quality policy of "customer satisfaction and continuous improvement," SFQ has developed energy storage systems with independent intellectual property rights. Presently, it upholds enduring and stable partnerships with businesses in Europe, America, the Middle East, Africa, and Southeast Asia.

The company's steadfast development vision is "Creating a green life with clean energy." SFQ consistently strives to establish itself as a premier brand in the international energy storage sector.

Product Advantage

Modular Design

· Customization, high maintainability, upgradability, scalability, and reusability.
· Independent units, separate design.
· Flexible expansion, various space combinations.
· Streamlined operation and maintenance, improve equipment utilization, enhance renovation and cost-effectiveness.

Safety

· Automotive-grade battery cells.
· Warning system + fire extinguishing system (cell-level gas fire suppression + compartment-level gas fire suppression + water fire extinguishing + combustible gas exhaust + explosion-proof design).
· ESS modular + safety (cell-level protection + electrical protection + structural protection + emergency protection).
· Multiple safeguards, active safety, smart temperature control system design to provide a safer operating environment for the system.
· Industrial-grade security, Environmental friendly, Excellent performance Fireproof and heat-nsulating coating;

Aggregation

· Smart connection.
· Aggregation design.
· Integrated BMS intelligent power distribution, comprehensive control and protection of AC and DC.

Comprehensive Energy Management

· Smart energy optimization.
· Energy comprehensive regulation.
· Energy multi modal management.
· Holographic energy integration.
· Improved electricity cost.
· Professional cloud platform monitoring, multi-dimensional service system.

Service

Our business has a wide reach, spanning across various regions around the world. We have established a strong presence in China, Southeast Asia, Africa, and South America. With our global footprint, we are able to cater to diverse markets and provide our services and products to a wide range of customers.

Certification

SFQ's products have reached various countries and regions worldwide, meeting the requirements of IS09001,ROHS standards, and holds certifications from renowned international authorities such as ETL, TUV, CE, SAA, UL, etc.


证书号第19369939号

实用新型专利证书

实用新型名称：一种节能减排的光伏充电停车棚

发　明　人：苏振华;程仕龙

专　利　号：ZL 2023 2 0052694.8

专利申请日：2023年01月09日

专　利　权　人：四川安迅储能科技有限公司

地　　址：618599 四川省德阳市罗江经开区金山工业园红旗支路东段

授权公告日：2023年07月18日　　授权公告号：CN 219365578 U

局长
申长雨

第 1 页 (共 2 页)

其他事项参见续页


证书号第6211194号

外观设计专利证书

外观设计名称：充电停车棚（光储充停一体化系统）

设　计　人：苏振华;程仕龙

专　利　号：ZL 2023 3 0171597.6

专利申请日：2023年04月03日

专　利　权　人：四川赛孚迅储能技术有限公司

地　　址：610041 四川省成都市武侯区沙堰街40号1栋6楼601号

授权公告日：2023年09月05日　　授权公告号：CN 308209411 S

局长
申长雨

第 1 页 (共 2 页)

其他事项参见续页


证书号第6151713号

外观设计专利证书

外观设计名称：光伏路灯

设　计　人：苏振华;程仕龙

专　利　号：ZL 2023 3 0150713.6

专利申请日：2023年03月27日

专　利　权　人：四川安迅储能科技有限公司

地　　址：618599 四川省德阳市罗江经开区金山工业园红旗支路东段

授权公告日：2023年07月18日　　授权公告号：CN 308131120 S

局长
申长雨

第 1 页 (共 2 页)

其他事项参见续页

Hope-1

Product Features

- Easy Installation
- Web/App interface with rich content and optional remote control
- Fast charging and ultra-long battery life
- Intelligent temperature control with various safety and fire protection functions
- Simple design for modern home integration
- Compatible with multiple working modes

Project	Parameters	
Battery parameters		
Model	SFQ-H5K	SFQ-H10K
Power	5.12kWh	10.24kWh
Rated voltage	51.2V	
Operating voltage range	40V~58.4V	
Type	LFP	
Communications	RS485/CAN	
Operating temperature range	Charge: 0°C~55°C	
	Discharge: -20°C~55°C	
Max charge/discharge current	100A	
IP protection	IP65	
Relative humidity	10%RH~90%RH	
Altitude	≤2000m	
Installation	Wall-mounted	
Dimensions (W×D×H)	480mm× 140mm × 475mm	480mm× 140mm × 970mm
Weight	48.5kg	97kg
Inverter parameters		
Max PV access voltage	500Vdc	
Rated DC operating voltage	360Vdc	
Max PV input power	6500W	
Max input current	23A	
Rated input current	16A	
MPPT operating voltage range	90Vdc~430Vdc	
MPPT lines	2	
AC input	220V/230Vac	
Output voltage frequency	50Hz/60Hz (automatic detection)	
Output voltage	220V/230Vac	
Output voltage waveform	Pure sine wave	
Rated output power	5kW	
Output peak power	6500kVA	
Output voltage frequency	50Hz/60Hz (optional)	
On gird and off grid switching [ms]	≤10	
Efficiency	0.97	
Weight	20kg	
Certificates		
Security	IEC62619,IEC62040,VDE2510-50,CEC,CE	
EMC	IEC61000	
Transport	UN38.3	

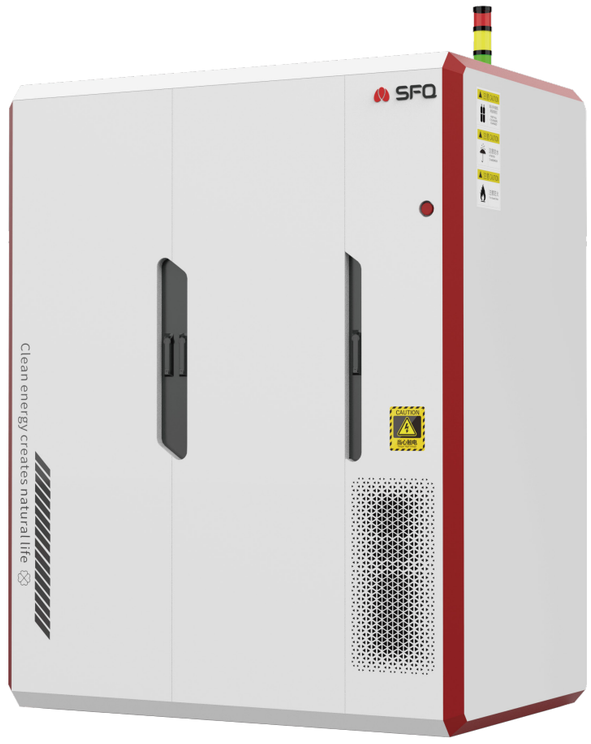
Cohesion-1

Product Features

- Active battery balancing management technology
- BMS accurately measures SOX with millisecond response time
- Car grade battery cells, cloud monitoring for quick warning
- Simple and technological appearance design, surface spraying fireproof and heat-insulating coatings
- BMS collaborative cloud platform enables visualization of battery cell status
- Built-in independent fire protection system

Model	SFQ-ES61
PV parameters	
Rated power	30kW
PV Max input power	38.4kW
PV Max input voltage	850V
MPPT voltage range	200V-830V
Starting voltage	250V
PV Max input current	32A+32A
Battery parameters	
Cell type	LFP3.2V/100Ah
Voltage	614.4V
Configuration	1P16S*12S
Voltage range	537V-691V
Power	61kWh
BMS Communications	CAN/RS485
Charge and discharge rate	0.5C
AC on grid parameters	
Rated AC power	30kW
Max output power	33kW
Rated grid voltage	230V/400V
Access method	3P+N
Rated grid frequency	50/60Hz
Max AC current	50A
Harmonic content THDi	< 3
AC off grid parameters	
Rated output power	30kW
Max output power	33kW
Rated output voltage	230/400Vac
Electrical connections	3P+N
Rated output frequency	50/60Hz
Max output current	43.5A
Maximum efficiency	0.978
Overload capacity	1.25/10s,1.5/100ms
Unbalanced load capacity	100%
Protection	
Input/output protection	Fuse+Shunter
Fire protection	PACK level fire protection+smoke sensing+temperature sensing
	perfluorohexaenone pipeline fire extinguishing system
General parameters	
Dimensions (W*D*H)	W1500*D900*H1080mm
Weight	720Kg
Feeding in and out method	Bottom-in and bottom-out
Temperature	-30℃~60℃
Altitude	4000m
Protection grade	IP65
Cooling method	Aircondition
Communications	RS485/CAN/Ethernet
Communication protocol	MODBUS-RTU/MODBUS-TCP
Display	Cloud Platform

Cohesion-2



Product Features

- Active battery balancing management technology
- BMS accurately measures SOX with millisecond response time
- Car grade battery cells, two-layer pressure relief, and cloud monitoring for quick warning, doubling safety
- Comprehensive digital LCD display
- BMS collaborative security control technology
- BMS collaborative cloud platform enables visualization of battery cell status

Model	SFQ-E241
PV parameters	
Rated power	60kW
Max input power	84kW
Max input voltage	1000V
MPPT voltage range	200~850V
Starting voltage	200V
MPPT lines	1
Max input current	200A
Battery parameters	
Cell type	LFP 3.2V/314Ah
Voltage	51.2V/16.077kWh
Configuration	1P16S*15S
Voltage range	600~876V
Power	241kWh
BMS communication interface	CAN/RS485
Charge and discharge rate	0.5C
AC on grid parameters	
Rated AC power	100kW
Max input power	110kW
Rated grid voltage	230/400Vac
Rated grid frequency	50/60Hz
Access method	3P+N+PE
Max AC current	158A
Harmonic content THDi	≤3%
AC off grid parameters	
Max output power	110kW
Rated output voltage	230/400Vac
Electrical connections	3P+N+PE
Rated output frequency	50Hz/60Hz
Max output current	158A
Overload capacity	1.1 times 10min at 35℃/1.2times 1min
Unbalanced load capacity	100%
Protection	
DC input	Load switch+Bussmann fuse
AC converter	Schneider circuit breaker
AC output	Schneider circuit breaker
Fire protection	PACK level fire protection+smoke sensing+temperature sensing, perfluorohexaenone pipeline fire extinguishing system
General parameters	
Dimensions (W*D*H)	1950mm*1000mm*2230mm
Weight	3100kg
Feeding in and out method	Bottom-In and Bottom-Out
Temperature	-30 ℃~+60 ℃ (45 ℃ derating)
Altitude	≤ 4000m (>2000m derating)
Protection grade	IP65
Cooling method	Aircondition (liquid cooling optional)
Communication interface	RS485/CAN/Ethernet
Communication protocol	MODBUS-RTU/MODBUS-TCP
Display	Touch screen/cloud platform

Cohesion-C1

Product Features

- Built-in independent fire protection system
- Uninterrupted power supply
- Car grade battery cells, two-layer pressure relief, and cloud monitoring for quick warning, doubling safety
- Multi-level intelligent thermal management to improve system efficiency
- BMS collaborative security control technology
- BMS collaborative cloud platform enables visualization of battery cell status

Model	SFQ-CS1MWh
Battery parameters	
Type	LFP 3.2V/280Ah
PACK configuration	1P16S*15S
PACK size	492*725*230（W*D*H）
PACK weight	112±2kg
Configuration	1P16S*15S*5P
Voltage range	600~876V
Power	1075kWh
BMS Communications	CAN/RS485
Charge and discharge rate	0.5C
AC on grid parameters	
Rated AC power	500kW
Max input power	550kW
Rated grid voltage	400Vac
Rated grid frequency	50/60Hz
Electrical connections	3P+N+PE
Max AC current	790A
Harmonic content THDi	≤3%
AC off grid parameters	
Rated output power	500kW
Rated output voltage	400Vac
Electrical connections	3P+N+PE
Rated output frequency	50Hz/60Hz
Overload power	1.1 times 10min at 35℃/1.2times 1min
Unbalanced load capacity	1
PV parameters	
Rated power	500kW
Max input power	550kW
Max input voltage	1000V
Starting voltage	200V
MPPT voltage range	350V~850V
MPPT lines	5
General parameters	
Dimensions (W*D*H)	6058mm*2438mm*2591mm
Weight	20T
Environmental temperature	-30 ℃~+60 ℃ (45 ℃ derating)
Running humidity	0~95% non-condensing
Altitude	≤ 4000m (>2000m derating)
Protection grade	IP65
Cooling method	Aircondition
Fire protection	PACK level fire protection+smoke sensing+temperature sensing, perfluorohexaenone pipeline fire extinguishing system
	Water Fire Protection (Reserved)
Communications	RS485/CAN/Ethernet
Communication protocol	MODBUS-RTU/MODBUS-TCP
Display	Touch screen/cloud platform

Energy Management System

The Energy Management System (EMS) automates the collection of data on energy usage from energy storage systems, empowering users to effectively manage and optimize their energy consumption. It offers a user-friendly interface for efficient resource management, while serving as a centralized platform for data analysis, visualization, and informed decision-making. By leveraging these capabilities, the EMS enhances energy efficiency, reduces costs, and enables users to make smarter choices regarding their energy usage.

Simple and user-friendly interface

Comprehensive and detailed parameter statistics

Safe and comprehensive protection and warning

Smart operation and control

SFQ Platform

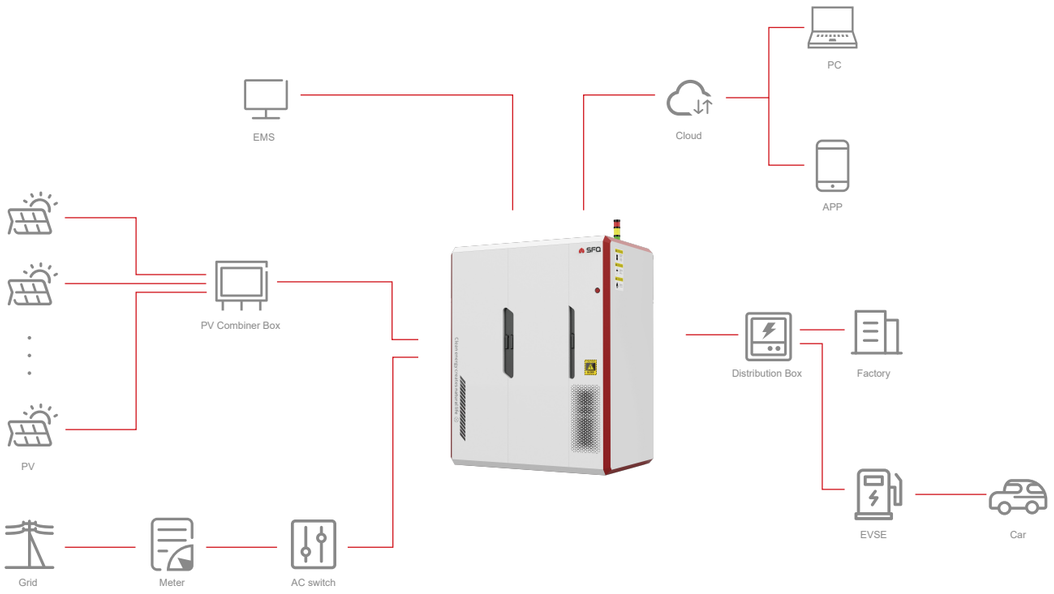
The cloud platform serves as a digital infrastructure for monitoring, controlling, and optimizing ESS through cloud technology. With real-time monitoring, remote control, and analytics, it allows users to track operations, monitor battery health, and optimize energy use, offering scalability, flexibility, and accessibility for efficient remote management and informed decision-making.

Simple and efficient cloud platform homepage

Intuitive and easy-to-understand interface

Easy-to-read graphical display

PV-ESS-EV Charging-Monitor



Topology

Introduction

The PV-ESS-EV Charging-Monitor Solution integrates and coordinates multiple elements such as PV, ESS, charging stations, and battery monitor. This integrated solution can be used for new energy vehicle charging stations, various parking lots, industrial parks, and more. It not only improves building utilization but also solves the intermittent, unstable, and consumption issues of new energy power generation. This makes EV charging greener, and the surplus power can be fed back to the grid for economic benefits.

How it works

This solution harnesses solar power to generate electricity, with any surplus energy efficiently stored in the Energy Storage System (ESS). Together, they manage both power supply and charging functions.Users can benefit from low electricity prices during off-peak periods by storing energy in the ESS. They can then utilize the stored energy to power the grid or charge electric vehicles during peak periods, thereby avoiding the need for direct and expensive grid energy consumption. This can lead to cost savings and enable peak and off-peak electricity price optimization. Additionally, even in the event of a power grid outage, the ESS can still provide charging capabilities for users.

PV

Solar panels are installed on the roof of the carport to minimize the footprint. The generated electricity serves as the supplementary to charge electric vehicles, maximizing the use of clean energy and contributing to carbon neutrality, energy conservation, and emission reduction.

STORAGE

The energy storage system utilizes 280AH high-capacity, high-density LFP batteries. It effectively achieves peak shaving in micro-grids, and stabilizes grid fluctuations arising from concentrated or large-scale electric vehicle charging. This alleviates the impact of charging station power consumption on the grid and resolves the conflicting challenges associated with partial grid capacity increase and expansion.

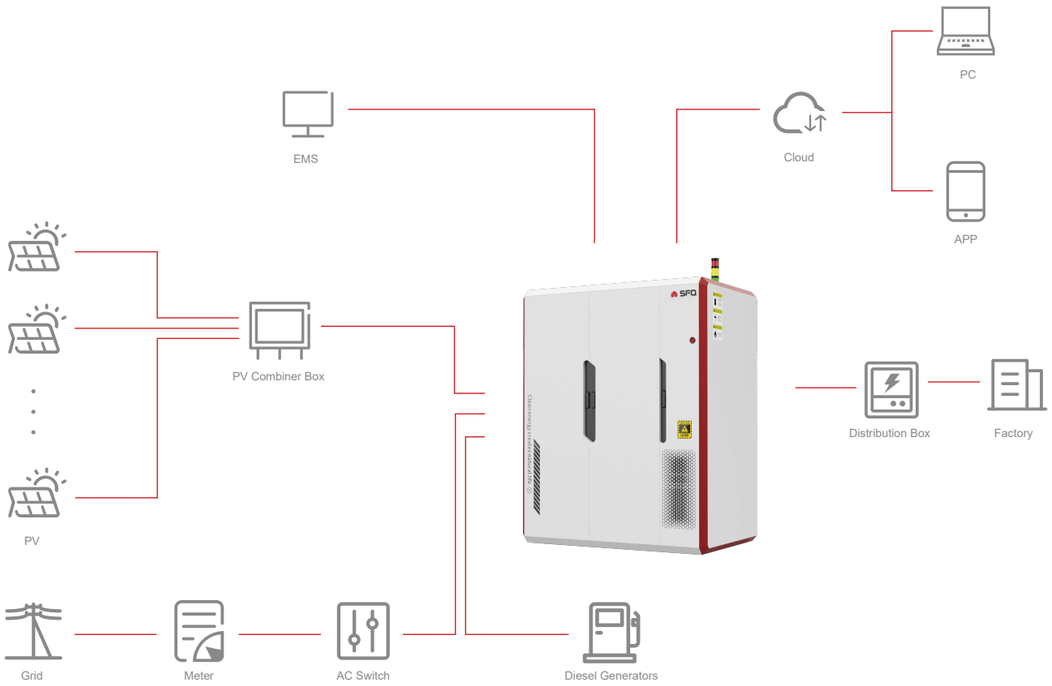
CHARGE

The charging demand for electric vehicles typically follows a tidal pattern, with charging loads concentrated during specific hours of the day. This solution offers 120kW DC charging stations with fast-charging capabilities, reducing the charging time for electric vehicles to just 30 minutes. This effectively addresses the challenge of charging electric vehicles in urban areas.

MONITOR

The charging stations are equipped with a battery monitor function. While the vehicle is charging, the monitor system remotely assesses the vehicle battery status in the cloud, eliminating the need to physically remove the battery. Upon completion of the charging process, users can access a battery health report, offering crucial data for battery risk warnings, residual value assessments, insurance claims, and battery recycling initiatives.

PV-Diesel Hybrid Solution



Topology

Introduction

The PV-Diesel Hybrid Solution integrates energy storage system, PV generation, diesel power, and the grid, incorporating an automatic voltage stabilization function to enhance the quality of the power supply. In situations where PV power is insufficient, the system seamlessly switches to diesel generators to ensure a continuous power supply. This hybrid power generation system not only decreases CO_2 emissions and cuts generation costs but also optimizes its usage by incorporating off-peak charging and peak discharging when connected to the power grid.

How it works

During the day, the PV system generates electricity, which is then converted from DC to AC power by inverters to supply user loads. Any excess electricity that is not consumed is stored in the energy storage system (ESS) through the bidirectional converter. During nighttime and rainy days, the ESS converts the stored electricity back into AC power to power user loads. When both the PV system and ESS are depleted, the diesel engine is activated. Some of the power generated is used for load consumption, while the remainder is used to charge the batteries.

Advantage

1 This solution resolves the challenges of building power facilities in areas with limited or no electricity, while also reducing costs.

2 By using industrial and commercial rooftops, this solution maximizes the use of clean energy, contributing to the goal of carbon neutrality.

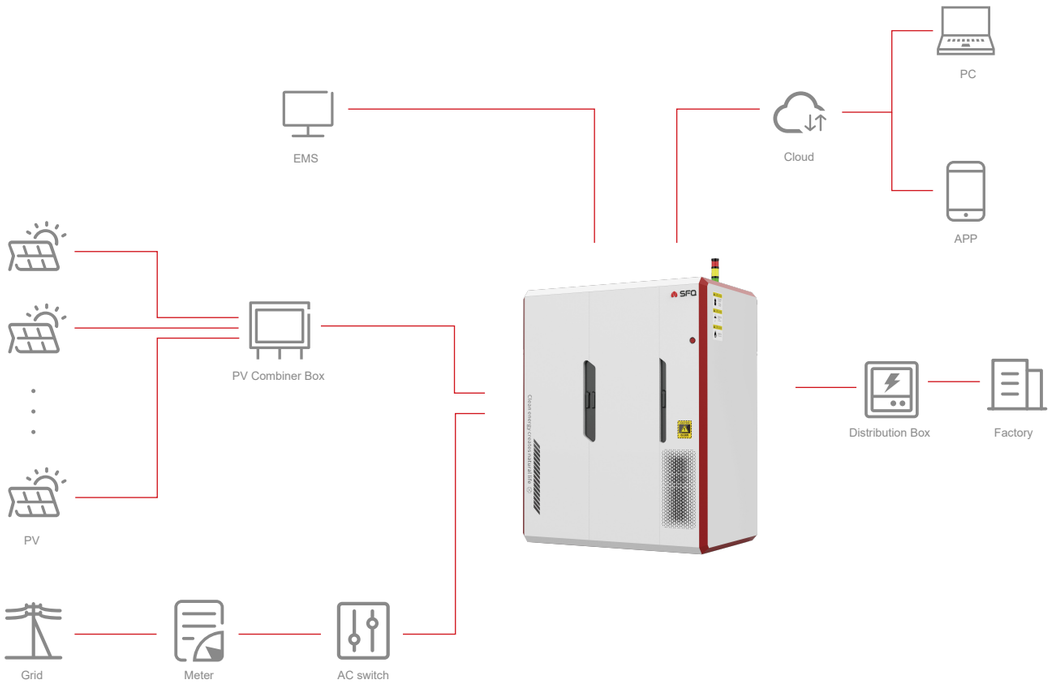
3 In situations of low energy demand, diesel generators often have poor fuel utilization rates, leading to unnecessary fuel wastage. This solution implements comprehensive control mechanisms to enhance fuel efficiency.

4 With the rising cost of diesel as a consumable, this solution employs an Energy Management System (EMS) for integrated energy control, reducing operational challenges and effectively saving electricity costs.

5 In the event of power grid outages, the energy storage system seamlessly functions as a backup power source, ensuring uninterrupted power supply for users and mitigating the impact of sudden outages.

6 This solution strategically shifts low-carbon emission electricity from non-peak to peak hours, reducing reliance on high-emission sources and actively contributing to energy conservation and emission reduction efforts.

All-in-one PV-ESS



Topology

Introduction

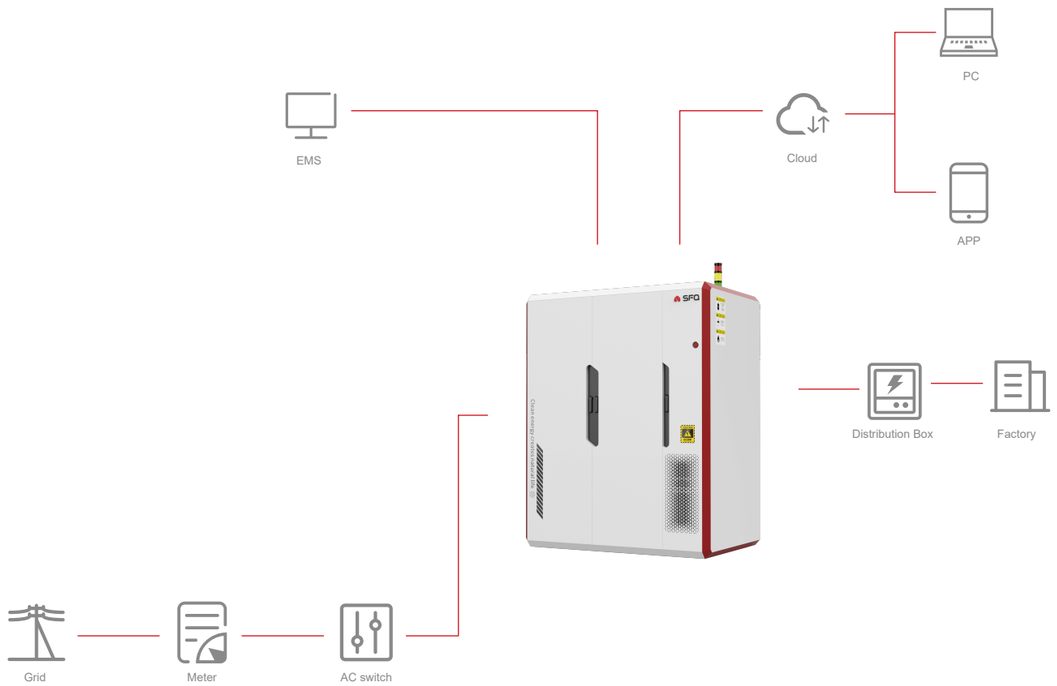
The PV-ESS Solution is an environmentally-friendly energy solution that combines the power of photovoltaic (PV) solar panels with an energy storage system (ESS). It efficiently captures and stores solar energy during sunny periods and ensures a reliable power supply even when sunlight is not available. This integrated system promotes greater energy independence, reduces dependence on the grid, and enables the use of clean energy even during non-sunny hours.

How it works

This solution harnesses solar energy for residential or commercial use. Solar panels capture sunlight and convert it into electricity to power the property. What sets a PV-ESS apart is its ability to store excess energy in batteries. This stored power is invaluable during periods of low sunlight or at night, providing a reliable and uninterrupted power supply. The system not only optimizes energy efficiency but also significantly reduces carbon footprint, making it a crucial component in sustainable energy practices.

Advantage

Peak Shaving ESS Solution



Topology

Introduction

This solution is designed for industrial enterprises with significant peak-to-valley price differentials or applications demanding high grid continuity, such as communication base stations and data centers. Users can use stored energy for peak-to-valley price arbitrage and manage capacity costs. Additionally, it serves as a backup power, reducing losses during power outages. As power market trading policies evolve, users can also employ energy storage for activities like demand response and participation in green power trading through ancillary services.

How it works

This solution strategically manages and optimizes the energy consumption of a facility. During periods of high electricity demand, the system uses stored energy to reduce the peak load drawn from the grid, thereby "shaving" the peak. This helps in avoiding higher electricity costs associated with peak demand charges. The ESS intelligently releases stored energy when electricity prices are high, ensuring cost savings and efficient energy usage.

Advantage

Peak valley arbitrage

In the power market with peak and valley prices, by charging the ESS at low prices and discharging at high prices, it realizes the arbitrage of the difference between the peak and valley tariffs and saves electricity costs for users.

Backup power

Communication base stations, data centers and other applications with high requirements for grid continuity need to be equipped with ESS to provide backup power for uninterruptible loads and to cope with sudden power outages. When a blackout fault occurs, the ESS can supply the reserve power, avoiding power interruption during fault repair, and reduce power outage losses.

Reduce electricity bill

Applicable to industrial enterprises with two-part prices, the ESS can be utilized to store energy in low electricity consumption and discharge it in the peak load, thus reducing the peak power and the declared maximum demand, and achieving reducing capacity charges.

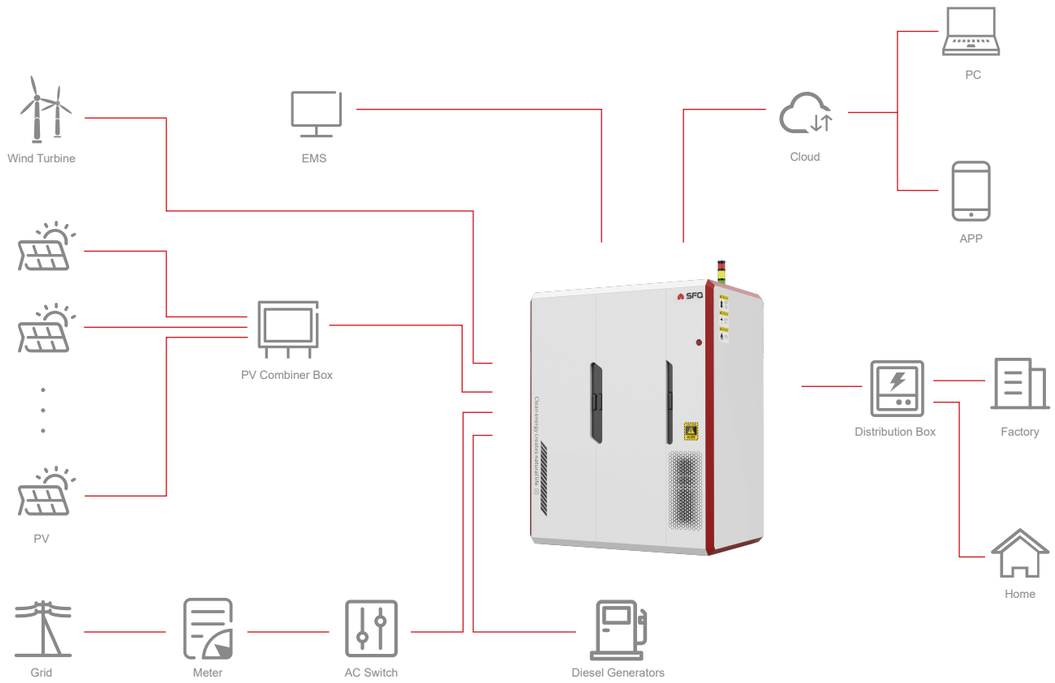
Spot transaction

Relevant policies on spot electricity transaction have made it clear that market players such as energy storage will be introduced to participate in green electricity trading in due course.

Ancillary services

Electricity ancillary services will become an important part of the power market trading varieties, industrial and commercial energy storage can also provide ancillary services in the power market as a new profit channel.

Micro-grid Solution



Topology

Introduction

The Micro-grid ESS (Energy Storage System) Solution operates independently or in conjunction with the power grid, allowing for greater control and reliability of electricity supply. The ESS component stores excess energy generated from renewable sources or during off-peak periods, which can be utilized during high-demand periods or when the main grid is unavailable. This solution provides enhanced energy resilience, reduced reliance on traditional power sources, and improved integration of renewable energy into the grid.

How it works

This solution integrates renewable energy sources, energy storage systems, and advanced control systems to create a localized power grid. It captures excess energy from renewable energy and stores it in batteries for use during peak demand or when the main grid is unavailable. The micro-grid manages the distribution of electricity, optimizing energy flow based on real-time data and algorithms. It can also be interconnected with the main grid, providing backup power and support during emergencies. Overall, the micro-grid ESS solution enhances energy independence, resilience, and integration of renewable energy into the grid.

Advantage

Efficient supply

Depending on local conditions, there are several energy supply options available to achieve comprehensive and efficient utilization of various energy sources while enhancing energy efficiency.

Economy and efficiency

Make full use of local energy sources, reduce the amount of power purchased from the grid, and reduce the cost of energy utilization.

Green and clean

Achieve high penetration of renewable energy operation and increase the greenness of your business.

Safe and reliable

Complement the power grid, improving power supply reliability and energy quality.

Project Case

Lubumbashi Office

PV Diesel Hybrid System

Capacity: 105.6kWp/100kW/215kWh

Location: The Democratic Republic of the Congo.

Operation time: 2024

Installation type: Outdoor

Application scenario: Ground-mounted photovoltaic

Manono Photovoltaic-Storage-Diesel Microgrid

PV Diesel Hybrid System

Capacity: 250kW/548kWh

Location: The Democratic Republic of the Congo.

Operation time: 2024

Installation type: Outdoor

Application scenario: Ground-mounted photovoltaic

South African Logistics Base

PV Diesel Hybrid System

Capacity: 105.6kWp/100kW/215kWh

Location: The Republic of South Africa.

Operation time: 2024

Installation type: Outdoor

Application scenario: Roof photovoltaic ESS diesel generator.

Zambia

Home Energy Storage

Capacity: 15kW/15kWh 10kW/10kWh 5kW/5kWh

Location: The Republic of Zambia

Operation time: 2024

Installation type: indoor

Application scenario: Roof photovoltaic

Taishan, Guangdong Project

Commercial and Industrial Roof Distributed PV+Ground ESS Projects
Capacity: 6957.68kWp/100kW/233kWh*23
Location: Taishan, Guangdong (in Taishan Weilibang Wood's factory)
Completion date: December 2023
Installation type: Factory roof + Ground

Yajiang, Sichuan Project

PV-ESS streetlights
Capacity: 79.2kWp/60kW/215kWh*3 and 66kWp/60kW/215kWh*1
Location: Yajiang, Sichuan
Operation time: 2024
Installation type: Outdoor
Application scenario: Ground-mounted photovoltaic

Fuquan, Guizhou Project

PV-ESS streetlights
Capacity: 118.8kWp/100kW/215kWh
Location: Shuanglong Industrial Park, Niuchang Town, Fuquan, Qiannan Prefecture, Guizhou
Completion date: October 2023
Installation type: Factory roof + Ground

Deyang, Sichuan Project

PV Carpot
Capacity: 16.5kW/20kWh
Location: Deyang, Sichuan, China
Operation time: 2022
Installation type: Outdoor