Energy Storage Manager 3.0 User Manual

Energy Storage
Manager User Manual
V3.1.0

Project
Navigator

1. Introduction to the System

1. System Introduction

The Energy Storage Manager is an intelligent cloud platform for centralised monitoring and operation and maintenance management of multiple energy storage stations. It can quickly integrate power station data into the cloud platform through a unified collection and control terminal, and supports a full range of functions such as real-time monitoring of station operation, summary display of data from multiple stations, analysis of power yield reports, video monitoring, single-station monitoring, centralised control and management of multiple stations, real-time monitoring of load aggregation platforms, and querying of historical command records, thus helping to reduce costs and increase efficiency in station operation and maintenance, and to ensure safety. This helps station operation and maintenance to reduce costs and increase efficiency, ensure safety, and realise the efficient operation of energy storage power stations.

This version upgrade reorganises the menus according to functional positioning and introduces a new account system, which allows integrators to create new companies in Energy Storage Manager and provide cloud platform services for downstream distributors, while at the same time creating accounting functions for investors and issuing accounting sheets for different revenue models, greatly enhancing operational efficiency and shortening financial processes.

2. Overview of system functions

Module name	Functionality
Front Office - Display Centre - Data Mega Screen	• Number of power stations, total installed power, total installed capacity, etc. • The Complex Map of the Self-Existing Earth • Revenue Indicators/Electricity Indicators/Total Indicators/Energy Efficiency Indicators/Alarm Indicators/Revenue Ranking
Front Desk - Display Centre - Multi-Site Overview	• Display site indicators • Revenue metrics/system efficiency/power metrics/alarms metrics/site ranking stats
Front Desk - Display Centre - Overview of Single Stations	• Display site indicators • Revenue metrics/system efficiency/power metrics/alarms metrics/site ranking stats

Front Desk - Display Centre - Site Map	• Showing the geographical distribution of sites • Single-site real-time metrics
Front Desk - Display Centre - 3D Visualisation	• Three-dimensional modelling of real-life scenarios of power stations • Monitoring of real-time power plant performance indicators • Simulate the real inspection scene of the power station, accurate to the equipment
Front Office - Monitoring Centre - Real-time Operation	• Summary of real-time performance indicators for the site • Details of real-time capacity at a single station

Front Office--Monitoring Centre--Single Station Monitoring	• Single-station monitoring screen for complete control of power stations
Front Desk-Surveillance Centre-Video Surveillance	• Displaying the site real-time monitoring screen
Front Office - Center Center - Centralised Management	• Batch configuration of tariffs can be performed for multiple power stations.
Front Desk-Alarm Center-Trouble Alarm	• Alarms are categorised by level, time of occurrence, alarm status and other dimensions. • Historical alarms are counted by alarm status, alarm device, alarm level, and number of hours. • Notification management, set different notification methods and notification frequencies for different levels of alarms.
Front Desk-Alarm Center-Battery Warning	• Daily monitoring of power station batteries for timely detection of defective batteries.
Front Office-Analytical Care-Battery Analysis	• Voltage Analysis - Analyse the consistency and risk trend of group terminal voltage and individual cell voltage in terms of voltage. • Current Analysis - Analyse the current at the end of a group and the consistency of the current between groups of the same stack from the current point of view. • Temperature Analysis - Analyse end-of-group temperatures and consistency between groups within a stack from a temperature perspective. • Backward Batteries Report - A report summarising suspected backward batteries in a power station.
Front Office-Analysis Center-Statistical Reports	• Electricity report - impulses and discharges of multiple and single stations, overall efficiency of the plant • Income statement - charging and discharging costs for multiple and single stations, actual income

Front Office-Operation & Maintenance Centre-Operation & Maintenance Management	• Tickets - Maintenance tickets are sorted and managed according to their current status. • Programme - periodicity, planned and automatic creation of work orders • O&M mapping - O&M fault expert library, providing checking steps and treatment methods according to fault manifestations • Operation and Maintenance Account-Number and name of the corresponding operation and maintenance person at each site.
Front Office - Operations Center - Response Management	• Docking of management and load aggregation platforms, real-time response monitoring and historical response queries
Front Office - Operations Centre - Accounting Management (Value-added Services)	• Maintenance of accounting tariffs • Configuration accounting rules • Initiates accounting, supports export of accounting statements and correction of meter readings. • Accounting for financial resources overview statistics face
Backstage-Administrative Centre-Site Management	• Display site location/commissioning time/installed power/site capacity/foreground display status/change operation • New sites can be added
Backstage-Manage Awareness-Organisation Members	• Accounts can be filtered, added and changed. • The internal division of the company can be performed.
Backstage-Administrative Centre-Quotient Management	• Display the name of the color, when it was created • Changes and additions can be performed.
Back Office-Management Center-Outside Company	• Power station data rights can be authorised by establishing an affiliation with a partner company.
Back Office-Administration Centre-Diary Management	• Displaying recent operations and account names

Backstage-Administrative Centre-Personality Configuration	• You can upload a custom logo and configure the system name to customize the configuration.
Backstage - Customer Care - Customer Number Management	• Manage basic customer information and maintain the relationship between the customer and the power station.

2. Instructions for use

1. Login & Logout

You can use http://xxxx-cloud.skiffenergy.com/sub-domain to enter the Energy Manager system.

Enter your User Name and Password in the Input Box and click the "Login" button to enter the system.

If your username/password is incorrect or not filled in, an error message will be displayed, and you will be logged in successfully only if all the information is correct. After logging in for the first time, you can remember your password (the password is not available by default, so click the eye icon to display the password) to avoid having to re-input your user name and password.

The current user name and password are displayed after exiting the system (the password is not available).

2. Foreground

2.1 Display Centre - Data Mega Screen

	Logos
Atlase	• Tap the data macro header five times to go to the macro configuration screen. • Customisable map: default China map, switchable to world map. • Customisable Data Source: Defaults to real data, can be customised and must be clicked on the Apply button to take effect; click the Preview button to preview the customised screen; if you go to the screen and find that the data source doesn't match the external data, check to see if you are using a customised data source first. Defined Data Sources
Site card	• Display key information for each site (number of plants/total installed power (MW)/total installed capacity (MWh)) • Hidden sites are not counted
Income indicators	• Daily total earnings chart: earnings statistics of the site for the last 7 days (excluding today) • Earnings Ranking: Multi-station Cumulative Earnings Ranking (top5)

	• Indicator: Multi-station cumulative earnings and yesterday's earnings statistics
Electricity Indicator	• Japan Charge/Discharge Amount Graph: Charge/Discharge Amount Graph for the Last 7 Days (Not Including Today) • Indicator: Cumulative total charging and discharging capacity of multiple stations (MWh)
Social benefit	• Cumulative Social Benefit Indicators for Multiple Stations Displayed
	• Standard Coal Savings (kg) = Total Discharge (kWh) * 0.284 kg/kWh • Total reduction in CO2 reduction (kg) = Total discharge (kWh) * 0.581 kg/kWh • Amount of trees planted (trees) = Total amount of CO2 emission reduction (kg) / 18.3

2.2 Showcase of Clubs - Multi-Site Overviews

Module (in software)	Instructions

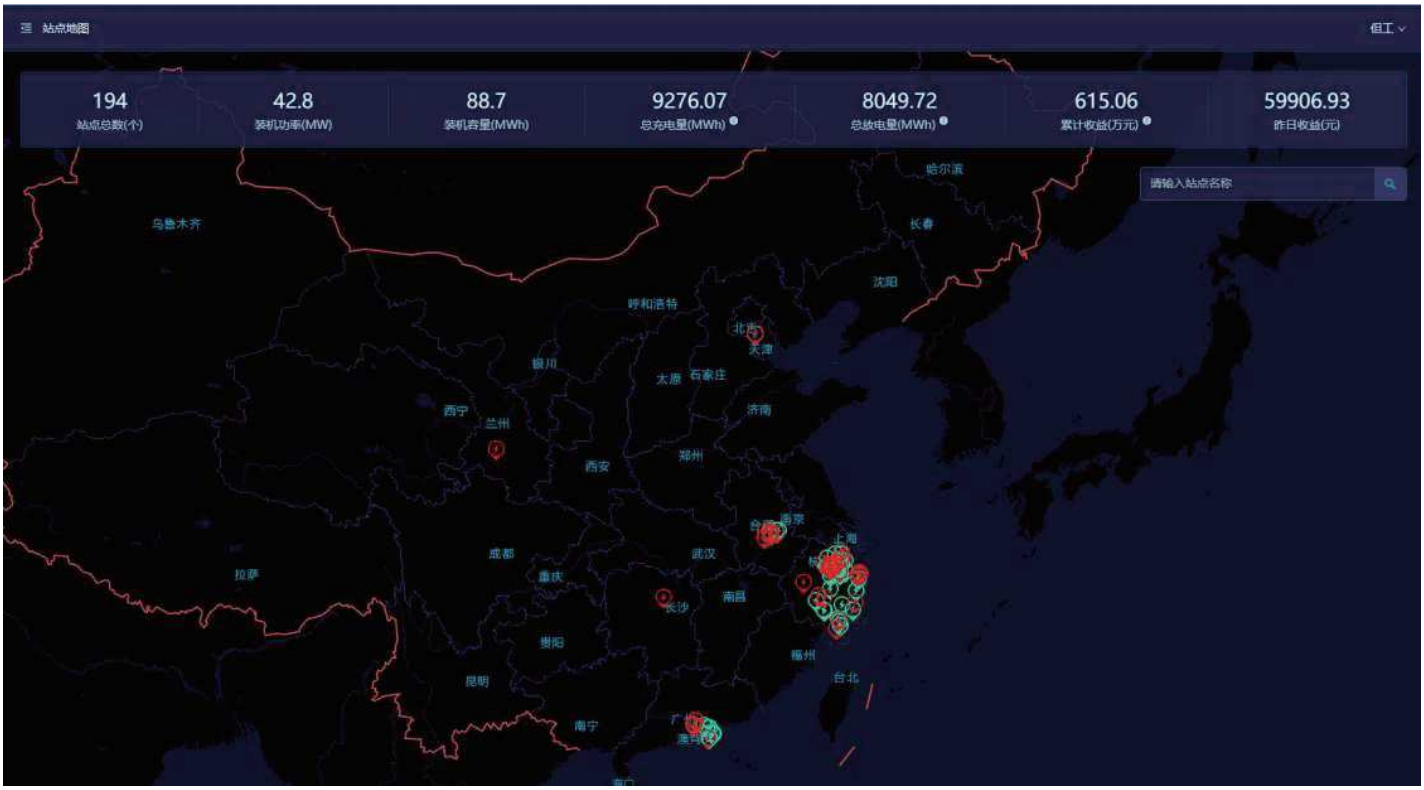
Cartridge railings	• Display key information for each site (number of plants/total installed power (MW)/total installed capacity (MWh)/total charge/discharge capacity (MWh)/accumulated revenue ($10,000)/yesterday's daily revenue ($)) • Hidden sites are not counted • Electricity and earnings statistics do not include Japan data.
Income indicators	• Revenue bar chart: Create a revenue chart based on the sum of the time-shared power (energy storage meter power) and the time-shared tariff (single station configuration) at each site. • Revenue ranking: Multiple stations are ranked according to revenue per kWh. • Filter by Last 7 days, Current month, Current year, All (Default is Last 7 days, not including the current day.)
Electricity Indicator	• Bar chart showing power station charge/discharge (kWh) in multiple time dimensions • Time filters: Last 7 days, Current month (default Last 7 days, excluding Current month); Current year, All (default Current year, month and year can be switched by default).
System efficiency	• Indicator: Display System Efficiency Indicator • Line graph: A graph showing the efficiency of the power plant system in multiple time dimensions. • Efficiency Ranking: Ranks sites for system efficiency. • Filter by date, month and year (default is 7 days, not including the current month). • Algorithm: System efficiency (%) = energy storage meter discharge/energy storage meter charge*100%
Alarm indicators	• Graph: Displaying statistics on the number of multi-station alarms • Pie Chart: Displaying multi-station equipment alarms and alarm level distribution • Ranking: Ranking of sites in terms of the number of alarms. • Filter by date, month and year (default is 7 days, not including the current month).
Times	• You can switch the time range for displaying data by clicking the "All/Year/Year/month/last 7 days" button in the chart area. You can also switch the time range by default. • Figures for the current year are displayed monthly, starting from 1 January of the current year. • Data for the month are displayed on a daily basis from 1 January. • All data from the month of the year of commissioning. • All times exclude date

2.3 Displaying Center - Single Station Overviews

Module (in software)	Instructions
Cartridge railings	• Display of key site information (plant photographs/installed power (kW)/installed capacity (kWh)/total charge/discharge) (kWh)/accumulated revenue (million yuan)/yesterday's revenue (yuan)/today's charging and discharging capacity (kWh)/time in operation/number of grid points) • Hidden sites are not counted

	• Drop-down list for site switching, supports searching
Income indicators	• Revenue bar chart: Create a revenue chart based on the sum of the time-shared power (energy storage meter power) and the time-shared tariff (single station configuration) at each site. • Filter by Last 7 days, Current month, Current year, All (Default is Last 7 days, not including the current day.)
Electricity Indicator	• Bar chart showing power station charge/discharge (kWh) in multiple time dimensions • Time filters: Last 7 days, Current month (default Last 7 days, excluding Current month); Current year, All (default Current year, month and year can be switched by default).
System efficiency	• Indicator: Display of single-station system efficiency indicators • Line graphs: Displaying a graph of the combined efficiency of power stations in multiple time dimensions. • Filter by date, month and year (default is 7 days, not including the current month). • Algorithm: System efficiency (%) = energy storage discharge/energy storage charge*100%
Alarm indicators	• Graph: Displaying the number of alarm statistics for a single station • Pie Chart: Displaying multi-station equipment alarms and alarm level distribution • Filter by date, month and year (default is 7 days, not including the current month).
Times	• You can switch the time range for displaying data by clicking the "All/Year/Year/month/last 7 days" button in the chart area. You can also Custom switching time range. • Data for the current year are shown by month from 1 January of the current year, and data for the current month are shown by date from 1 January of the current year. All data are shown from the month of the year in which operation commenced. • All times exclude date

2.4 Displaying Center-Site Map


站点地图
但工
194
站点总数(个)
42.8
装机功率(MW)
88.7
装机容量(MWh)
9276.07
总充电量(MWh)
8049.72
总放电量(MWh)
615.06
累计收益(万元)
59906.93
昨日收益(元)
请输入站点名称
哈尔滨
长春
沈阳
乌鲁木齐
呼和浩特
北京
天津
银川
太原
石家庄
西宁
兰州
济南
西安
郑州
南京
上海
成都
武汉
拉萨
重庆
南昌
长沙
贵阳
福州
昆明
台北
南宁

Module (in software)	Instructions
Norm	• Display key information for each site (number of plants/total installed power (MW)/total installed capacity (MWh)/total charge/discharge) (MWh)/accumulated earnings ($ million)/yesterday's earnings ($)) • Hidden sites are not counted • Electricity and earnings statistics do not include Japan data.
Atlase	• Showing map location of power stations • The icon in the event of a power station warning is shown in red; the icon for normal power station status is shown in green.
Each other	• Click on the window to the right of a site to display basic information about the site and locate it on the map. • In the search box on the right, look up a site, display basic site information in a floating window, and locate the site on a map. • The "Monitor" button on the site's basic information will take you to the "Single Site Monitor" module for that site. 

2.5 Display Centre - 3D Visualisation

Module (in software)	Instructions
Level	• The first level is the station, which performs the statistics of the power stations, and you can switch between stations by clicking the drop-down box at the top. • The second layer is the box, click to view the energy storage box equipment data, you can click on the top drop-down box to switch the energy storage container • The third layer is the equipment, click to view the real-time operation data and daily alarm data of the equipment, and the battery cluster can also view the voltage, temperature, SOC, SOH information of all the cells in the cluster, and you can click the drop-down box at the top to switch between the equipment.
Site level indicators	• Basic information: station location, installed power (kW), installed capacity (kWh), commissioning time • Gain indicators: cumulative gain of the site (10,000 yuan) and yesterday's gain statistics (yuan); total gain chart: site's last 7 days (Earnings statistics (excluding today) • Power indicator: total cumulative charge/discharge of the site (MWh); daily charge/discharge graph: graph of charge/discharge for the last 7 days (excluding today) • Real-time power: Contrast between real-time power at today's and yesterday's stations, as compared to real-time operation. • Alarm statistics: Alarm data summary; graph of alarms per day (last 7 days, excluding today) • Today's Alarms: Click on "Real-time Alarms" to jump to the Fault Alarms screen; display today's alarms (including time of birth, status, device name, and alarm title).

Site-level alarm icons are displayed.	• Alert status: ⚠ highest level A with a reddish tint; highest level B with an orange tint; highest level C with an ochre tint; and only ungraded alerts with a blue tint. • Click⚠ to display a pop-up window showing all real-time alarms under this container. • Buttons: "Emergency Stop" requires two USB keys; "Enter Container" to enter the corresponding container. • Real-time data windows: displaying the average of stack SOC in the box; the sum of PCS power in the box; the average of BMS stack temperature in the box
Site Hierarchy Bottom Button	• Show/hide alarms: Controls the display/hiding of the alarm window. • Show/hide data: Controls the display/hiding of the data window. • Default Viewing: Return to the default camera position • Hide/show panels: Hide the title bar, sidebar, and buttons above, and display only a "Show panels" button.
In-box cascade indicators	• Top buttons: "Back" to return to the site hierarchy; "Switch" to switch containers. • Battery Stack: Stack Operating Status, Real-time Voltage, Real-time Current, Average Temperature, Stack SOC, Stack SOH, Individual Temperature Maximum/Minimum Values • Real-time monitoring: connect the camera inside the container, real-time monitoring • PCS: real-time power, module temperature, power curve (one curve per PCS) • Today's Alarms: Count the number of alarms in the box today. • Real-time alarms: Click to jump to the fault alarm screen. • Alarm display: Displays the alarms that have occurred today (including time of birth, status, device name, and alarm title).
Hierarchical alarm icons are displayed inside the box.	• Alert status: ⚠ highest level A with a reddish tint; highest level B with an orange tint; highest level C with an ochre tint; and only ungraded alerts with a blue tint. • Click⚠ to display a pop-up window showing all real-time alarms under this cluster.

Bottom button of the box hierarchy	• Show/hide alarms: Controls the display/hiding of the alarm window. • Show/hide data: Controls the display/hiding of the data window. • Default Viewing: Return to the default camera position • Hide/show panels: Hide the title bar, sidebar, and buttons above, and display only a "Show panels" button. • Previous: Switch to the previous container/storage room, the button is deactivated when you reach the first one. • Next: Switch to the next container/storage room, the button is disabled when you reach the last one.
Equipment level indicators	• Top buttons: "Back" to return to the container level; "Switch" to switch between devices. • Left sidebar - Cluster information: real-time operating status, real-time voltage, real-time current, average temperature, heap SOC, heap SOH, individual temperature maxima/minima ID, individual voltage maxima/minima ID
Device Hierarchy Bottom Button	• Default Viewing: Return to the default camera position • Hide/show panels: Hide the title bar, sidebar, and buttons above, and display only a "Show panels" button. • Previous: Switch to the previous cluster, the button will be disabled when you reach the first one. • Next: Switch to the next cluster, the button is disabled at the last cluster.

2.6 Monitoring Center - Real-time Operation

	Logos
Enquiry area	• Filter enquiries by province/city/region, click the "Search" button to search by filter condition, and click "Reverse" to search by filter condition. Set" button, all the filtered content is cleared to present the default state (the default state is All), according to the scope of the filtering display Display the real-time performance of all stations. • Fuzzy matching with manual input of site name
List of power stations	• Display site name/cloud station communication status/PCS operation status (number of multiple PCSs displaying different status)/total active power (priority energy storage meter power, no energy storage meter to take PCS power)/SOC (multiple battery stacks displaying the highest and lowest SOC)/charge/discharge amount today (energy storage meter power)/air conditioner temperature (multiple air conditioners displaying the highest and lowest temperatures)/number of alarms today/number of cycles today (calculation formula=real-time discharge amount today/installed capacity) Number of cycles (calculation formula = real-time discharge today/installed capacity) • The "-" indication is no data, and all communication status interrupts are no data. • 5 seconds to refresh real-time data • Click on the plus sign for details

Particulars	• Display station location/commissioning time/installed power/site capacity • The three charts are shown from left to right. Charge/discharge capacity and system efficiency (last 7 days), click to enlarge Total active power (today's vs. yesterday's), click to enlarge Equipment fault alarms (current date), listed in descending order according to the time of birth, with a maximum of 20 alarms loaded and a scroll bar appearing for more than 4-5 alarms. • Click on the "Go to Monitor" button on the right to jump to the single-site monitoring screen.
	

2.7 Surveillance Centre - Single Station Monitoring

2.7.1 Home page

Module (in software)	Instructions
Overview data	• Displays current plant overview data, basic plant information, and reads plant information from the database. • Total Gain, Total Charge, Total Discharge, from daily charge/discharge accumulation • Combined efficiency = total discharges/total charges
Energy flow diagram	• Shows the current direction of energy flow at the power station and the power data of each station. • Combined efficiency: Discharge/charge efficiency of the entire energy storage plant

Warning status	• Displays the current equipment alarm status of the power station. • Cloud-Station Communication: Communication status between the cloud and the station • PCS: communication status + alarm status (prioritises communication status if equipment is interrupted or delayed) • BMS: communication status + alarm status (if equipment is interrupted or delayed, prioritise communication status) • Meters: communication status + alarm status (if equipment is interrupted or delayed, prioritise communication status) • Air conditioning: communication status + alarm status (if equipment is interrupted or delayed, prioritise communication status)
Real-time operation	• Display the current strategic power, storage power, load power, grid power, SOC, inverse power limit, and demand limit of the power plant. • Policy Curve: After configuring a preconfigured policy or an intelligent policy, a policy curve appears. • Requirement limit value: upper limit of requirement to facilitate analysis and comparison • Inverse power limit value: Lower power limit for analysing and contrasting • X-axis: 0:00 today ~ 6:00 tomorrow

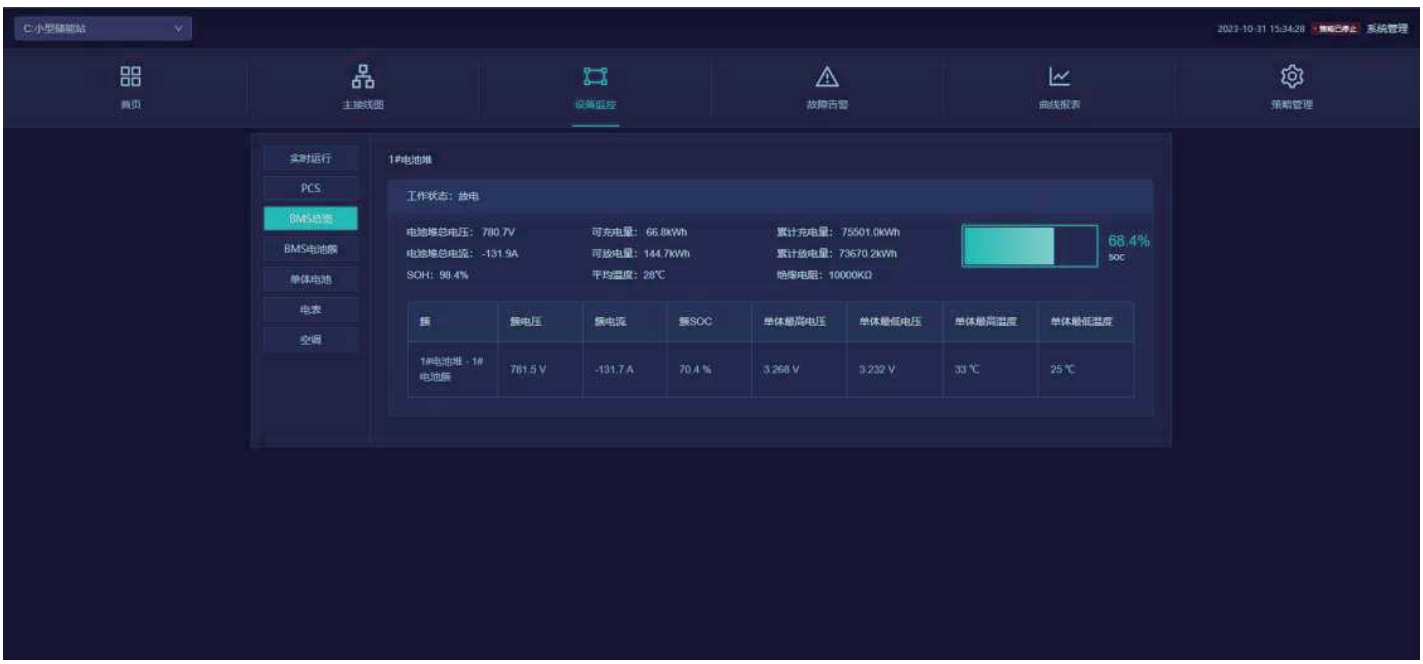
2.7.2 Main Wiring Diagram

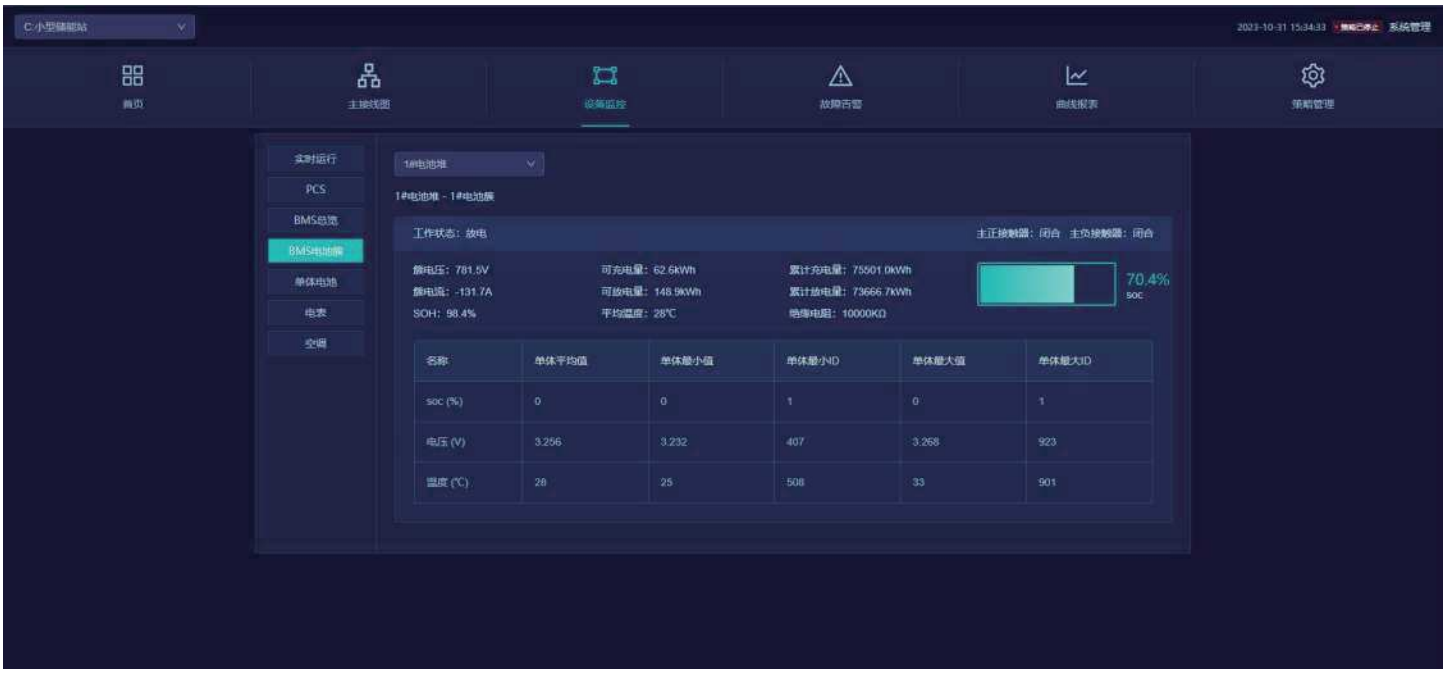
Module (in software)	Instructions
Wiring diagram	• Wiring Diagram Configuration: You can configure field wiring in the background, drag and drop components and bind devices, and display related data.

2.7.3 Equipment monitoring

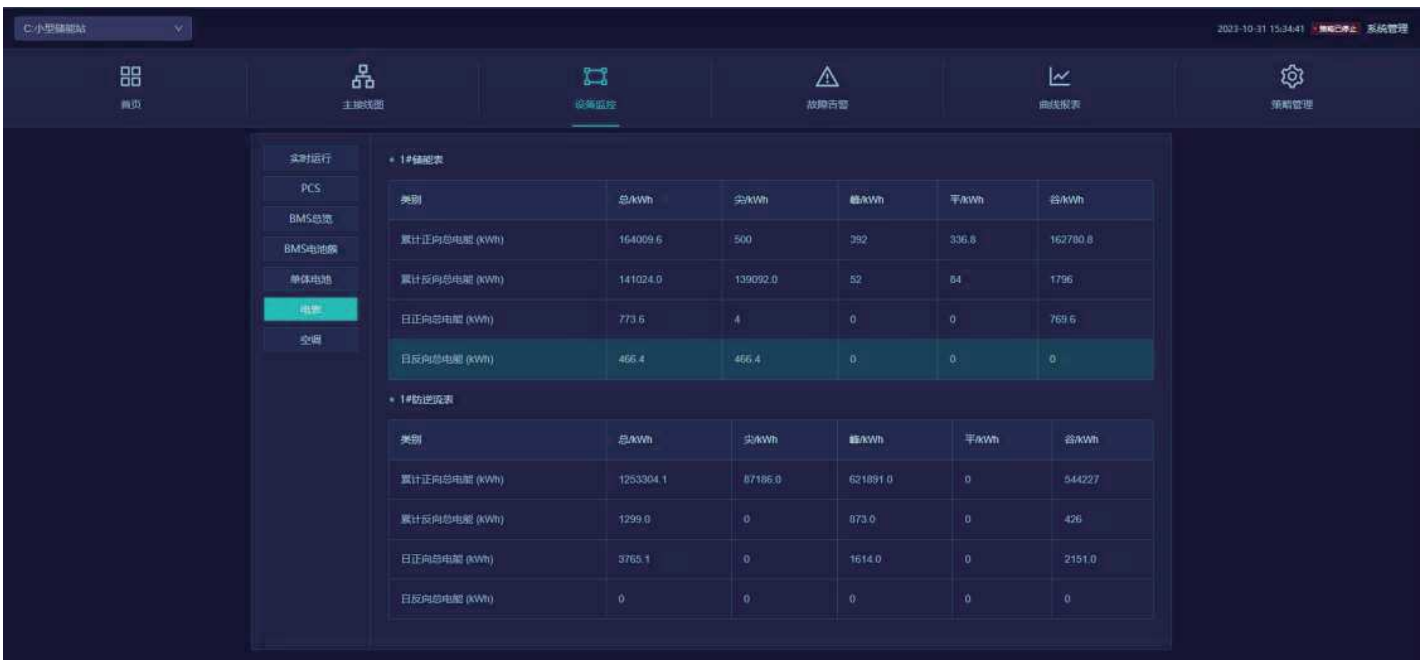

C:小型储能站
2023-10-31 15:27:09
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
实时运行
PCS
BMS总览
BMS电池簇
单体电池
电表
空调
实时有功功率
-195.2kW
实时无功功率
0kVar
电池堆SOC
75.6%
电池堆SOH
98.4%
今日充电量
773.6kWh
今日放电量
442.4kWh
储能功率曲线
有功功率/kW
无功功率/kVar
2023-10-30 有功功率
2023-10-31 有功功率
2023-10-30 无功功率
2023-10-31 无功功率
PCS平均温度
温度/℃
PCS 昨日平均温度
PCS 实时平均温度
电堆平均SOC
SOC/%
电堆平均温度
温度/℃

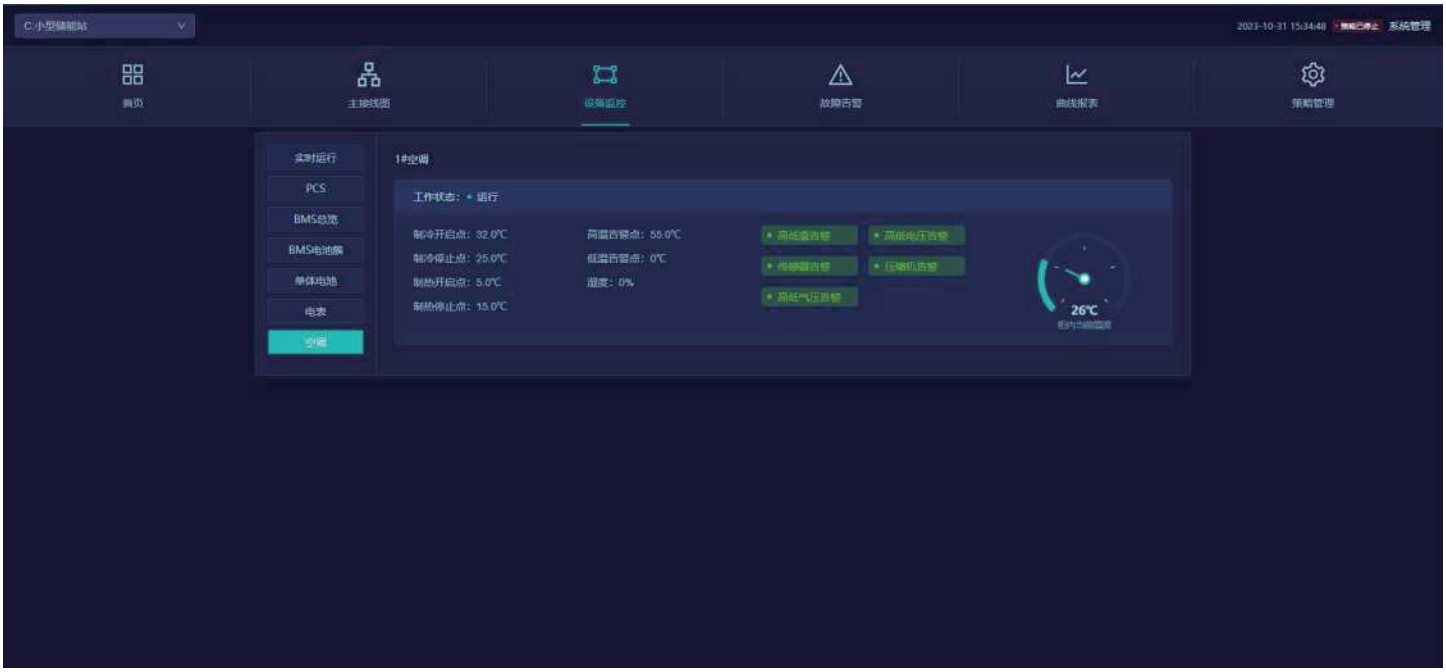

C:小型储能站
2023-10-31 15:29:58
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
实时运行
PCS
BMS总览
BMS电池簇
单体电池
电表
空调
1#pcs
工作状态：运行
并网状态：并网
设备状态：正常
控制模式：远程
总交流有功功率：-99.9kW
总交流无功功率：0.2kVar
总交流视在功率：99.9kVA
总交流功率因数：-1
当天交流充电量：394.4kWh
当天交流放电量：214.5kWh
PCS模块温度：53.2℃
PCS环境温度：47.2℃
A相电压：397.8V
B相电压：395.2V
C相电压：395.4V
交流频率：50.0Hz
A相电流：146.3A
B相电流：146.6A
C相电流：144.7A
支路1
放电中
直流功率：-102kW
直流电压：780.6V
直流电流：-130.4A


C:小型储能站
2023-10-31 15:34:28
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
实时运行
PCS
BMS总览
BMS电池簇
单体电池
电表
空调
1#电池堆
工作状态：放电
电池堆总电压：780.7V
电池堆总电流：-131.9A
SOH：98.4%
可充电量：66.8kWh
可放电量：144.7kWh
平均温度：28℃
累计充电量：75501.0kWh
累计放电量：73670.2kWh
绝缘电阻：10000KΩ
68.4%
SOC
簇
簇电压
簇电流
簇SOC
单体最高电压
单体最低电压
单体最高温度
单体最低温度
1#电池堆 - 1#电池簇
781.5 V
-131.7 A
70.4 %
3.268 V
3.232 V
33 ℃
25 ℃


C小型储能站
2023-10-31 15:34:33
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
实时运行
PCS
BMS总览
BMS电池簇
单体电池
电表
空调
1#电池堆
1#电池堆 - 1#电池簇
工作状态：放电
主正接触器：闭合 主负接触器：闭合
簇电压：781.5V
簇电流：-131.7A
SOH：98.4%
可充电量：62.6kWh
可放电量：148.9kWh
平均温度：28℃
累计充电量：75501.0kWh
累计放电量：73666.7kWh
绝缘电阻：10000KΩ
70.4%
soc
名称 单体平均值 单体最小值 单体最小ID 单体最大值 单体最大ID
soc (%) 0 0 1 0 1
电压 (V) 3.256 3.232 407 3.268 923
温度 (℃) 28 25 508 33 901


C小型储能站
2023-10-31 15:34:37
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
实时运行
PCS
BMS总览
BMS电池簇
单体电池
电表
空调
单体电池实时数据
电池堆 1#电池堆
电池簇 1#电池簇
查询
重置
表格
柱状图
单体编号 电压/V 温度/℃ SOC/% SOH/%
1 3.259 29.0 0 0
2 3.261 30.0 0 0
3 3.260 29.0 0 0
4 3.253 28.0 0 0
5 3.260 29.0 0 0
6 3.258 29.0 0 0
7 3.254 29.0 0 0
8 3.259 28.0 0 0
9 3.259 29.0 0 0


C小型储能站
2023-10-31 15:34:41
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
实时运行
PCS
BMS总览
BMS电池簇
单体电池
电表
空调
1#储能表
类别 总/kWh 尖/kWh 峰/kWh 平/kWh 谷/kWh
累计正向总电能 (kWh) 164009.6 500 392 336.8 162780.8
累计反向总电能 (kWh) 141024.0 139092.0 52 84 1796
日正向总电能 (kWh) 773.6 4 0 0 769.6
日反向总电能 (kWh) 466.4 466.4 0 0 0
1#防逆流表
类别 总/kWh 尖/kWh 峰/kWh 平/kWh 谷/kWh
累计正向总电能 (kWh) 1253304.1 87186.0 621891.0 0 544227
累计反向总电能 (kWh) 1299.0 0 873.0 0 426
日正向总电能 (kWh) 3765.1 0 1614.0 0 2151.0
日反向总电能 (kWh) 0 0 0 0 0

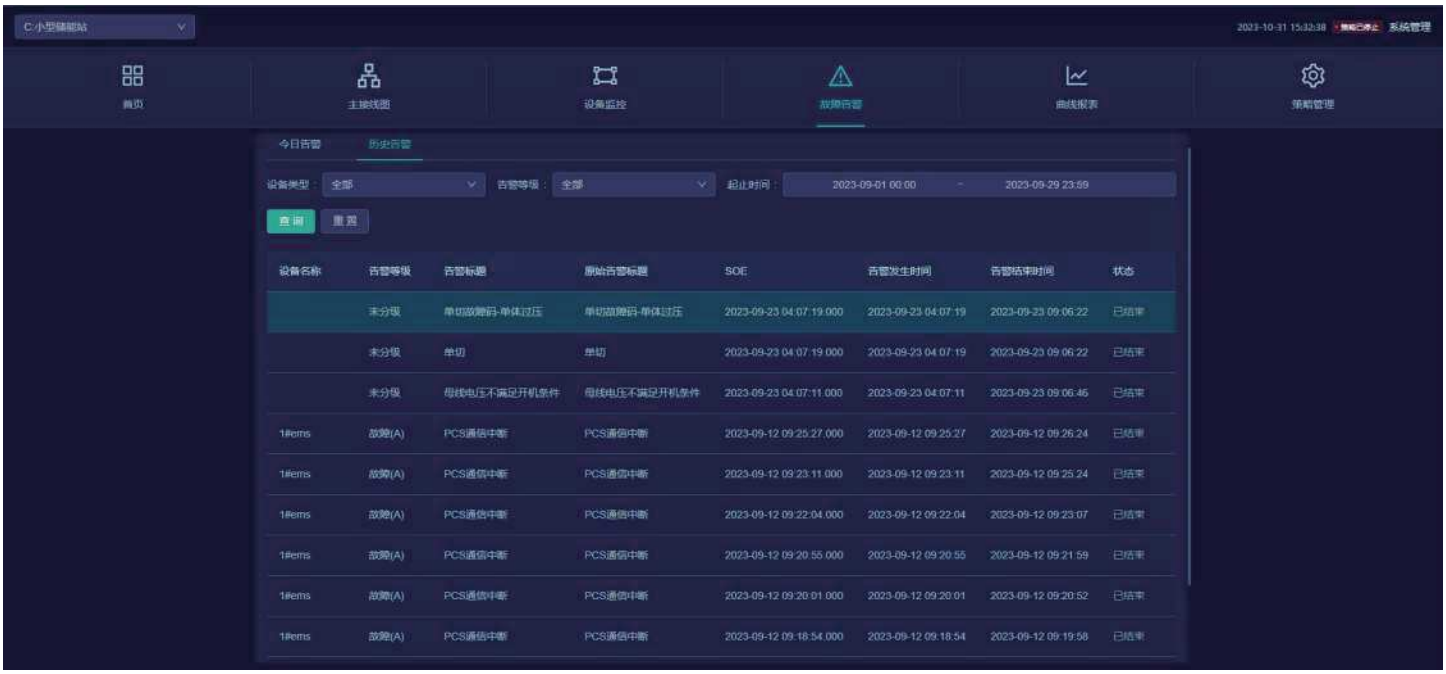


Module (in software)	Instructions
Real-time operation	• Display station macro data and station-level parameter curves, including station-level active and reactive power, battery stack SOC curves, today's charge/discharge amount, etc.
PCS	• Device card: Displays the PCS device's operating status, operating data, etc. If the device is interrupted, it displays the device interruption and adds the last data reporting time. • Equipment operation: control PCS equipment on/off, fault reset operation • On button: switches between two display states: On and Off. The PCS can be switched on and off by clicking on the PCS, which requires an imported password to take effect; • Failure reset button: PCS reset operation, requires an USB key. • DC data + charging/discharging status, displayed in one line for each DC support circuit (true displays green, false displays grey) • Four states from PCS telemetry

BMS Overview	• Device card: Displays the status of BMS device operation, operation data, etc. If the device is interrupted, it displays the device interruption and adds the last data reporting time. • Device Operation: Controls BMS device fault reset operation • Failure reset button: To perform BMS battery reset operations, i.e., to reset to zero, an USB key is required. • Reactor status includes: charging, discharging, ready, cluster maintenance, forbidden charging, forbidden discharging, fault, from telemetry • SOC is displayed graphically, obtained from telemetry, with attention to accuracy.
BMS Battery Cluster	• Device switching: Switch battery stacks, view cluster data under different stacks, and if the device is interrupted, display the device interruption and append the last data reporting time. • Battery cluster status including: charge, discharge, ready, cluster maintenance, forbidden charge, forbidden discharge, fault, from telemetry • SOC is displayed graphically, obtained from telemetry, with attention to accuracy.
Single cell	• Device switching: switch battery clusters, view single battery data under different battery clusters, select the first battery stack and the first battery cluster by default, if the device is interrupted, display the device interruption and append the last data reporting time. • View switching: Switch between displaying data as a table or bar chart, with bar charts supporting X- and Y-axis zoom.
Wattmeter	• Device card: Displays meter statistics, and if the device is interrupted, displays the device interruption and appends the last data reporting time. • Name of the meter in the system, state of communication • Obtained from meter telemetry, with attention to accuracy

	• In a typical power station, there will be a main meter, a station meter and a user side meter.
Refrigeration	• The setting defaults to reading the original value, and after the change is saved, toast is displayed and the save is successful. If the device is interrupted, display the device interruption and append the last data reporting time. • On/Off button, two display states: On and Off, click to turn on/off the air conditioner, need to enter an ID to turn on/off the air conditioner, need to enter an ID to turn on/off the air conditioner, need to enter an ID to turn on/off the air conditioner. The effect of the organisation's contribution to the development of the programme has been established;
Video surveillance	• Device cards: Display the status of video surveillance devices, alarm messages, etc.
Fire equipment	• Equipment card: Displays the operating status and data of fire protection equipment, and if the equipment is interrupted, it displays the equipment interruption and the last data reporting time. • Equipment operation: configuration of fire equipment linkage ring, the formation of fire linkage, to protect the safety of equipment • Arranged in order of fire mainframe, thermo-hygrometer, flooding, smoke sensor, etc. • Each device is designed in the form of a card, with two cards in one row, arranged in descending order. • Thermo-Hygrometer with specific values, accuracy 0.1°C 0.1% humidity

2.7.4 Fault Alerts



Module (in software)	Instructions
Today's Alert	• Alarms displayed with a status of in progress or finished today
Historical Alarms	• Alarms whose display status is Closed and whose end time is before today's date

2.7.5 Curved statement


C:小型储能站
2023-10-31 15:35:02
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
并网点：
全部
导出
收益指标
2023-10-24 ~ 2023-10-30
近七日
当月
当年
总收益：6574.1 元
收益
1,000
800
600
400
200
0
电量指标
总充电量：5356.0kWh
总放电量：4639.2kWh
综合效率：
充电量
放电量
系统效率

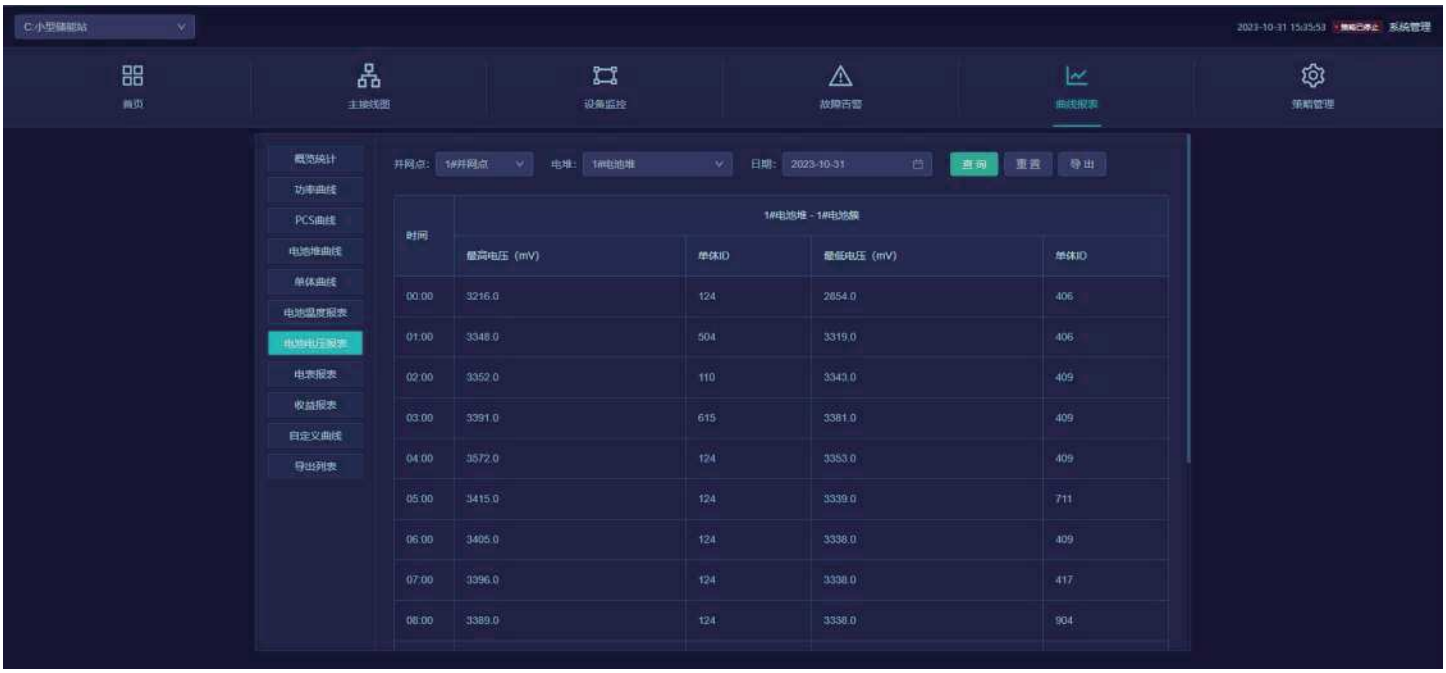

C:小型储能站
2023-10-31 15:35:12
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
并网点：
1#并网点
日期：
2023-10-28 ~ 2023-10-30
电网功率
负载功率
储能功率
光伏功率
功率/kW
800
600
400
200
0
-200
2023-10-28 00:00
2023-10-28 06:50
2023-10-28 13:40
2023-10-28 20:30
2023-10-29 03:20
2023-10-29 10:10
2023-10-29 17:00
2023-10-29 23:50
2023-10-30 06:40
2023-10-30 13:30
2023-10-30 20:20

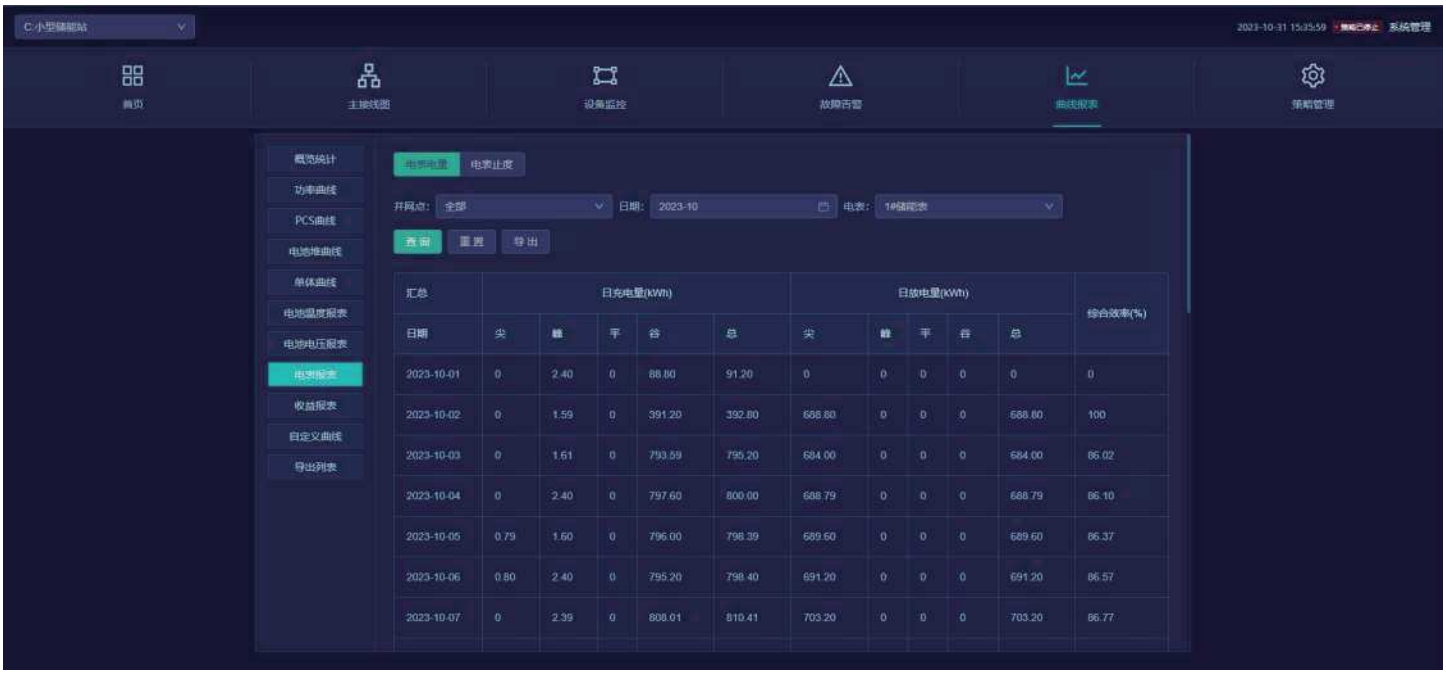

C:小型储能站
2023-10-31 15:35:18
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
并网点：
1#并网点
PCS：
1#pcs
对比
趋势
日期：
2023-10-31
查询
重置
导出
有功功率/kW
无功功率/kVar
150
100
50
0
-50
-100
-150
0.9
0.6
0.3
0
-0.3
-0.6
-0.9
00:00 01:06 02:12 03:18 04:24 05:30 06:36 07:42 08:48 09:54 11:00 12:06 13:12 14:18 15:24 16:30 17:36 18:42 19:48 20:54 22:00 23:06
2023-10-30有功功率
2023-10-31有功功率
2023-10-30无功功率
2023-10-31无功功率
温度曲线/℃
70
60
50

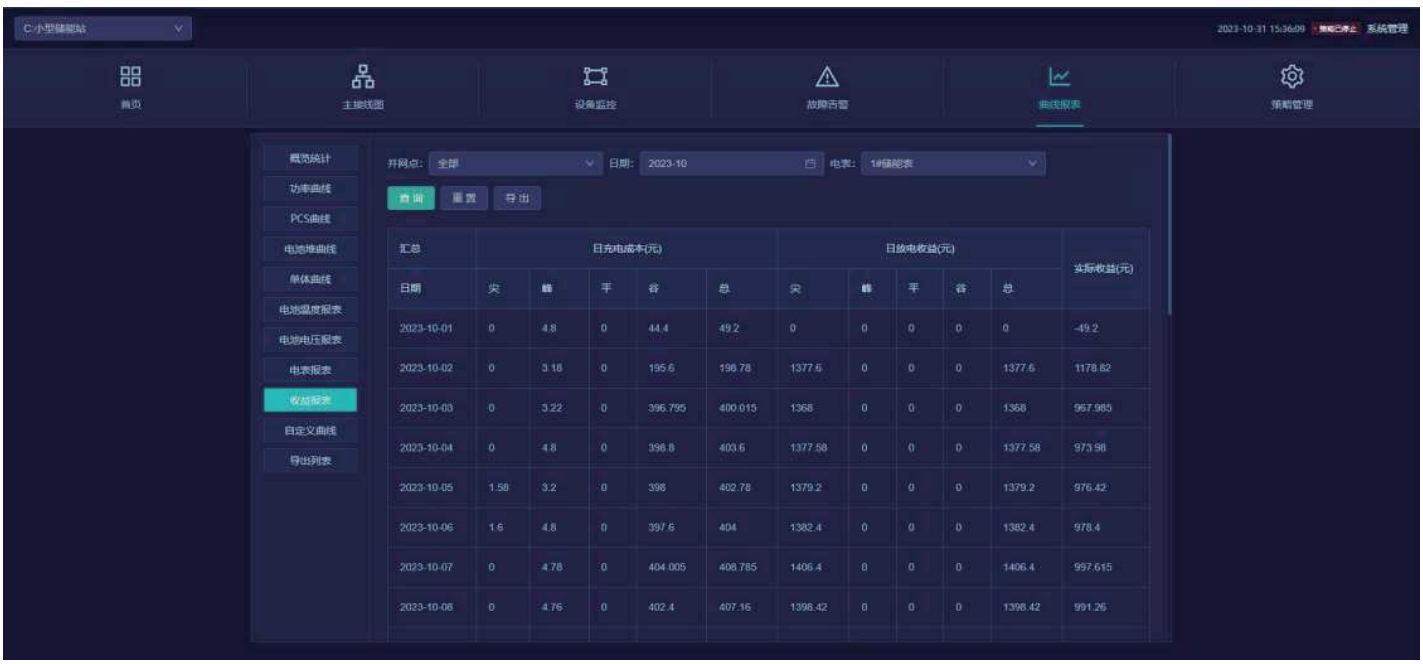

首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
对比
趋势
日期: 2023-10-31
查询
重置
导出

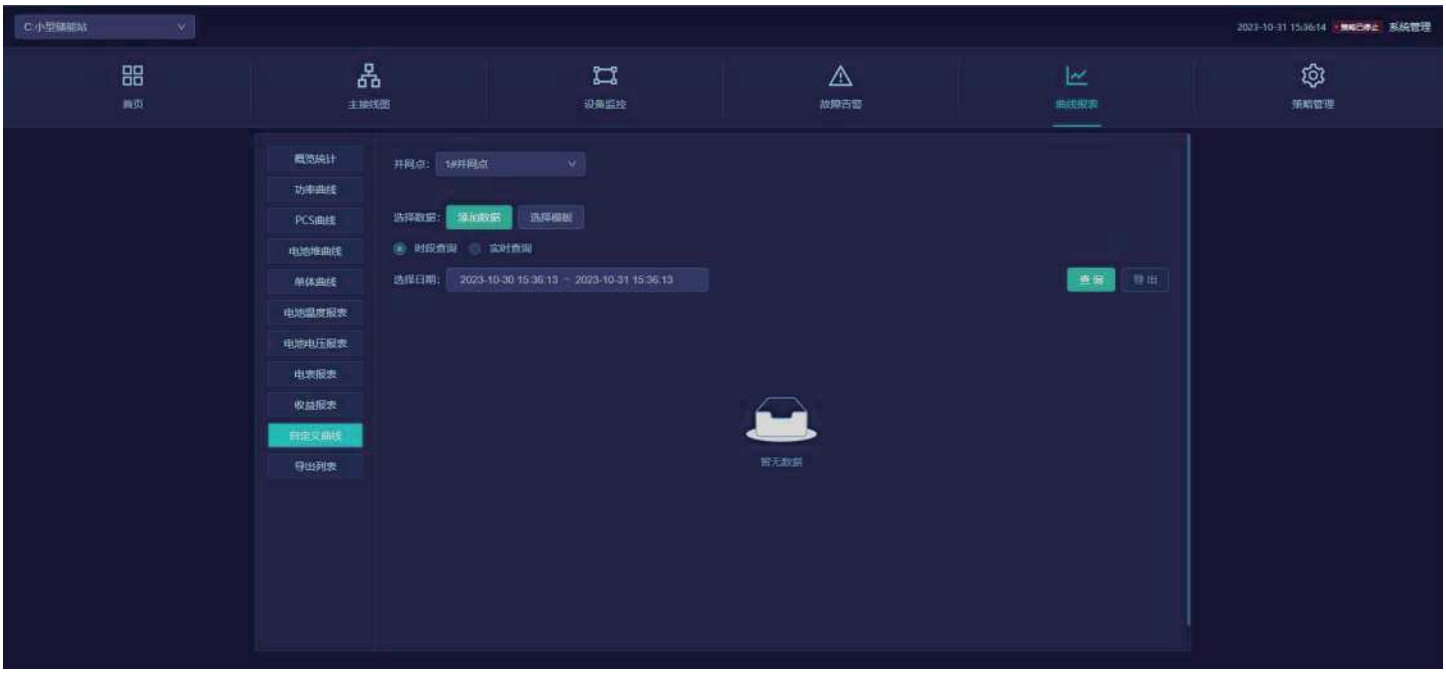

首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
查询
重置
导出

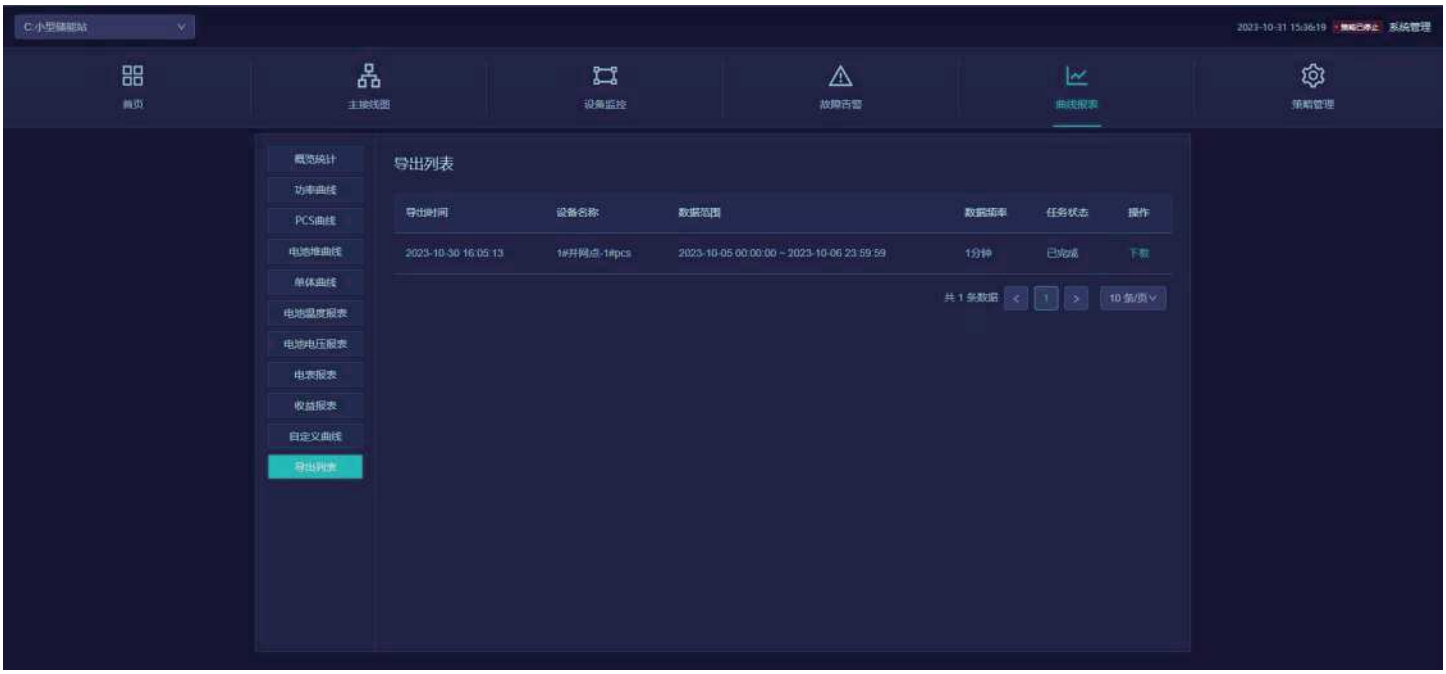

首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
查询
重置
导出
时间
1#电池堆 - 1#电池簇
最高温度（℃）
单体ID
最低温度（℃）
单体ID
00:00 33.0 901 28.0 508
01:00 31.0 901 28.0 512
02:00 34.0 901 31.0 506
03:00 31.0 901 26.0 508
04:00 33.0 901 30.0 509
05:00 33.0 901 29.0 506
06:00 33.0 1010 29.0 508
07:00 32.0 901 29.0 508
08:00 32.0 901 28.0 506


C:小型储能站
2023-10-31 15:35:53
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
并网点: 1#并网点
电堆: 1#电池堆
日期: 2023-10-31
查询
重置
导出
时间
1#电池堆 - 1#电池簇
最高电压（mV）
单体ID
最低电压（mV）
单体ID
00:00 3216.0 124 2854.0 406
01:00 3348.0 504 3319.0 406
02:00 3352.0 110 3343.0 409
03:00 3391.0 615 3381.0 409
04:00 3572.0 124 3353.0 409
05:00 3415.0 124 3339.0 711
06:00 3405.0 124 3338.0 409
07:00 3396.0 124 3338.0 417
08:00 3389.0 124 3338.0 904


C:小型储能站
2023-10-31 15:35:59
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
电表电度
电表止度
并网点: 全部
日期: 2023-10
电表: 1#储能表
查询
重置
导出
汇总
日充电量(kWh)
日放电量(kWh)
综合效率(%)
日期 尖 峰 平 谷 总 尖 峰 平 谷 总
2023-10-01 0 2.40 0 88.80 91.20 0 0 0 0 0 0
2023-10-02 0 1.59 0 391.20 392.80 688.80 0 0 0 688.80 100
2023-10-03 0 1.61 0 793.59 795.20 684.00 0 0 0 684.00 86.02
2023-10-04 0 2.40 0 797.60 800.00 688.79 0 0 0 688.79 86.10
2023-10-05 0.79 1.60 0 796.00 798.39 689.60 0 0 0 689.60 86.37
2023-10-06 0.80 2.40 0 795.20 798.40 691.20 0 0 0 691.20 86.57
2023-10-07 0 2.39 0 808.01 810.41 703.20 0 0 0 703.20 86.77


C:小型储能站
2023-10-31 15:36:09
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
概览统计
功率曲线
PCS曲线
电池堆曲线
单体曲线
电池温度报表
电池电压报表
电表报表
收益报表
自定义曲线
导出列表
并网点: 全部
日期: 2023-10
电表: 1#储能表
查询
重置
导出
汇总
日充电成本(元)
日放电收益(元)
实际收益(元)
日期 尖 峰 平 谷 总 尖 峰 平 谷 总
2023-10-01 0 4.8 0 44.4 49.2 0 0 0 0 0 -49.2
2023-10-02 0 3.18 0 195.6 196.78 1377.6 0 0 0 1377.6 1178.82
2023-10-03 0 3.22 0 396.795 400.015 1368 0 0 0 1368 967.985
2023-10-04 0 4.8 0 396.8 403.6 1377.58 0 0 0 1377.58 973.98
2023-10-05 1.58 3.2 0 398 402.78 1379.2 0 0 0 1379.2 976.42
2023-10-06 1.6 4.8 0 397.6 404 1382.4 0 0 0 1382.4 978.4
2023-10-07 0 4.78 0 404.005 408.785 1406.4 0 0 0 1406.4 997.615
2023-10-08 0 4.76 0 402.4 407.16 1398.42 0 0 0 1398.42 991.26





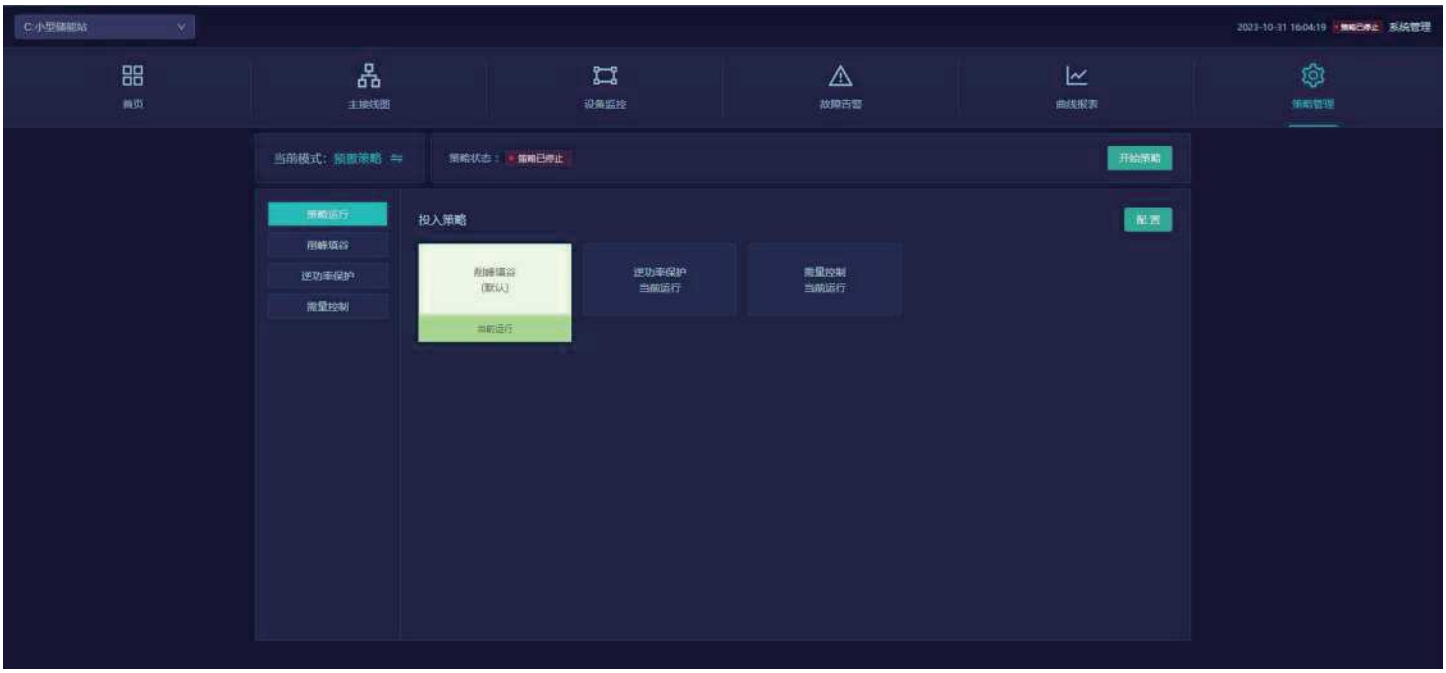
Module (in software)	Instructions
Overview statistics	• Yield Indicator: Displays the current yield at the grid point, with the last seven days displayed by default. • Power indicator: Displays the charging and discharging capacity of the current station and the system efficiency, with a default display of the last seven days.
Income statement	• Daily charging cost: Charging volume by time period * corresponding time period electricity price

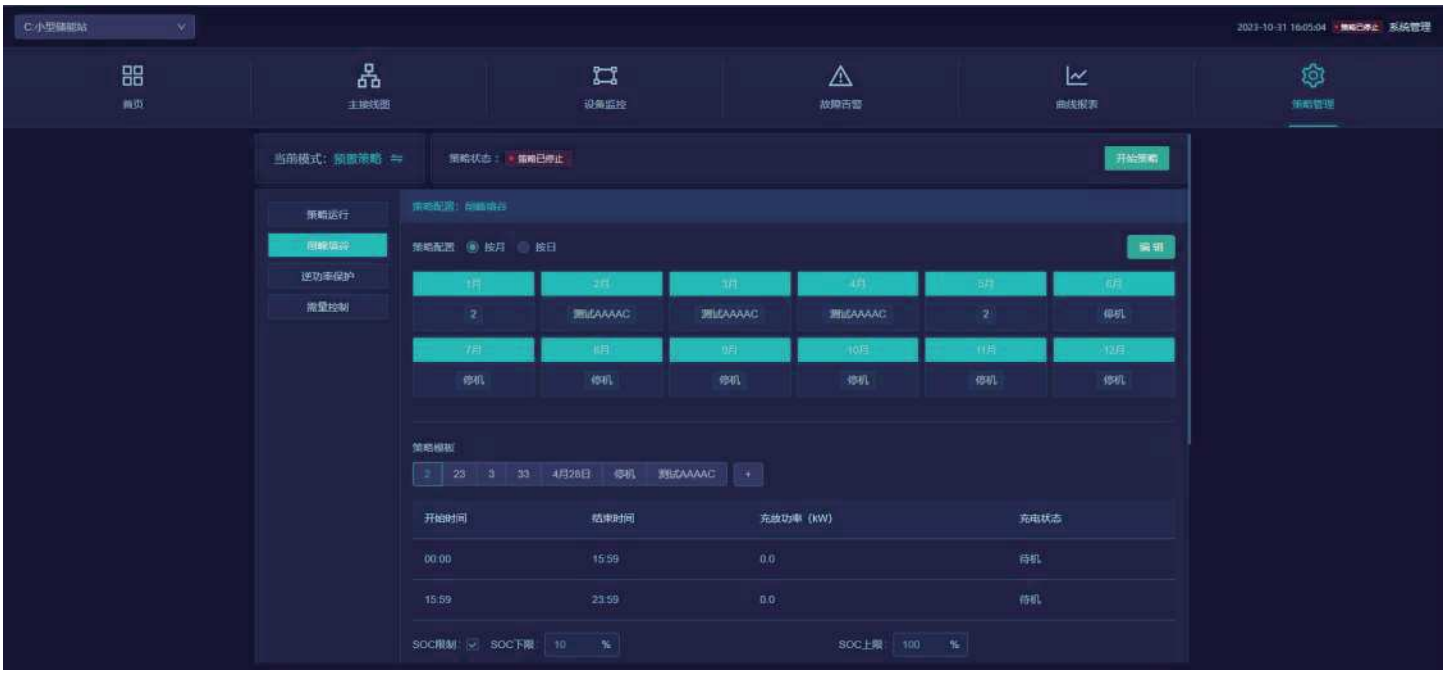
	• Daily Discharge Revenue: Discharge Volume for each time period * Corresponding Time Period Electricity Price • Actual revenue: daily discharge revenue - daily charging cost
Power statement	• Daily charge: Sum of the end of the date of the energy storage meter - Sum of the beginning of the date of the energy storage meter • Daily discharge: Sum of the end of the day of the storage meter - Sum of the beginning of the day of the storage meter
Meter statements	• Meter power: Meter power by the hour, daily charge/discharge = end of period - beginning of period power • Meter : Zero hour data per day, ratio
Power curve	• Display area: Display power curves at the grid point, including grid power, load power, storage power, and photovoltaic power.
PCS curve	• Contrast: Display power, temperature, three-phase voltage, and three-phase current curves of PCS equipment for the last two days, with the ability to switch equipment and time periods. • Trend: Displaying power, temperature, three-phase voltage, and three-phase current curves for the last seven days of PCS equipment, with the ability to switch equipment and time periods for viewing.
Battery Stack Curve	• Contrast: Display temperature, voltage, current, and SOC curves of battery stack equipment for the past two days, with the ability to switch equipment and time periods. • Trend: Display temperature, voltage, current, and SOC curves for the last seven days of battery stack equipment, with the ability to switch between equipment and time periods.
Monomer curve	• Displays temperature, voltage, and SOC curves for the last seven days for individual devices, with the ability to switch devices and time periods.

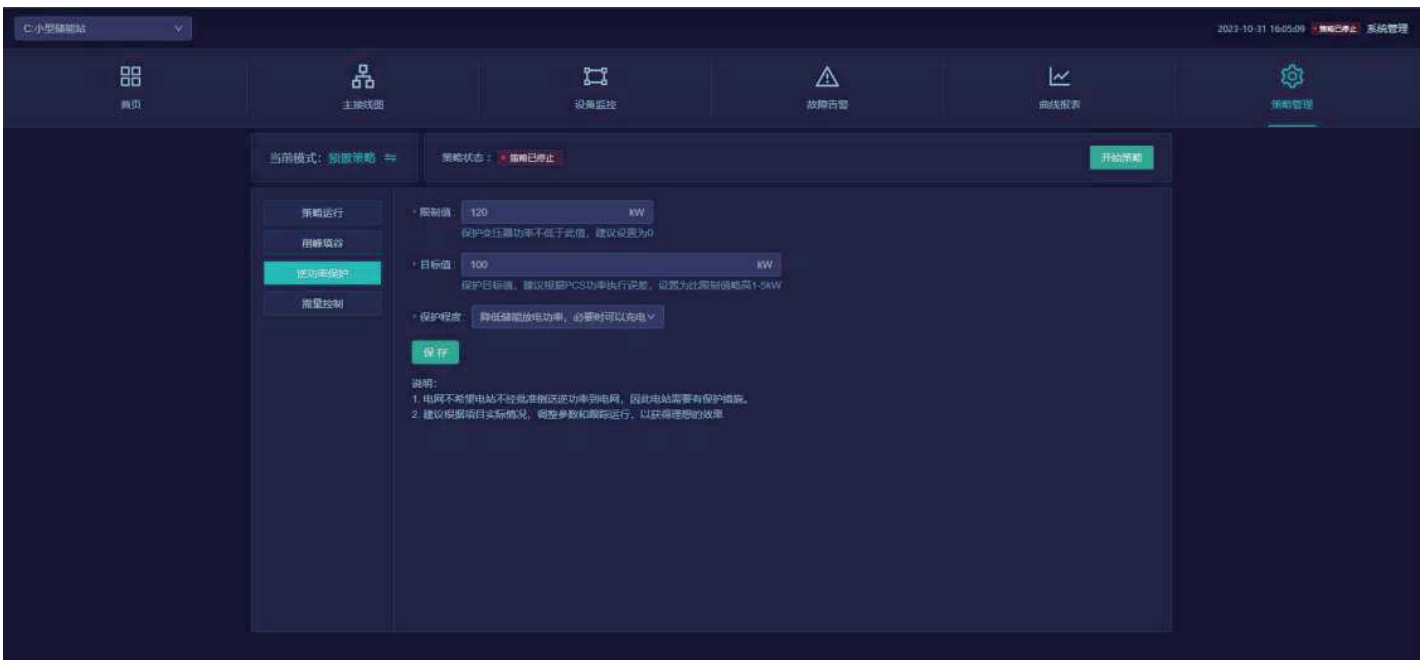
Battery Temperature Report	• At the time of the integer, list all the cell clusters under this stack, and for each cluster, find a high-temperature monomer and its id, and find a low-temperature monomer and its id.
Battery Voltage Report	• At the integer time, list all the cell clusters under this stack, and for each cell cluster, find the one with the highest voltage and its id, and find the one with the lowest voltage and its id.
Self-defining curves	• Different measurement points can be added, time ranges can be selected for querying, and data export at different frequencies is supported.
Export List	• Asynchronous export task list, export files can be downloaded here

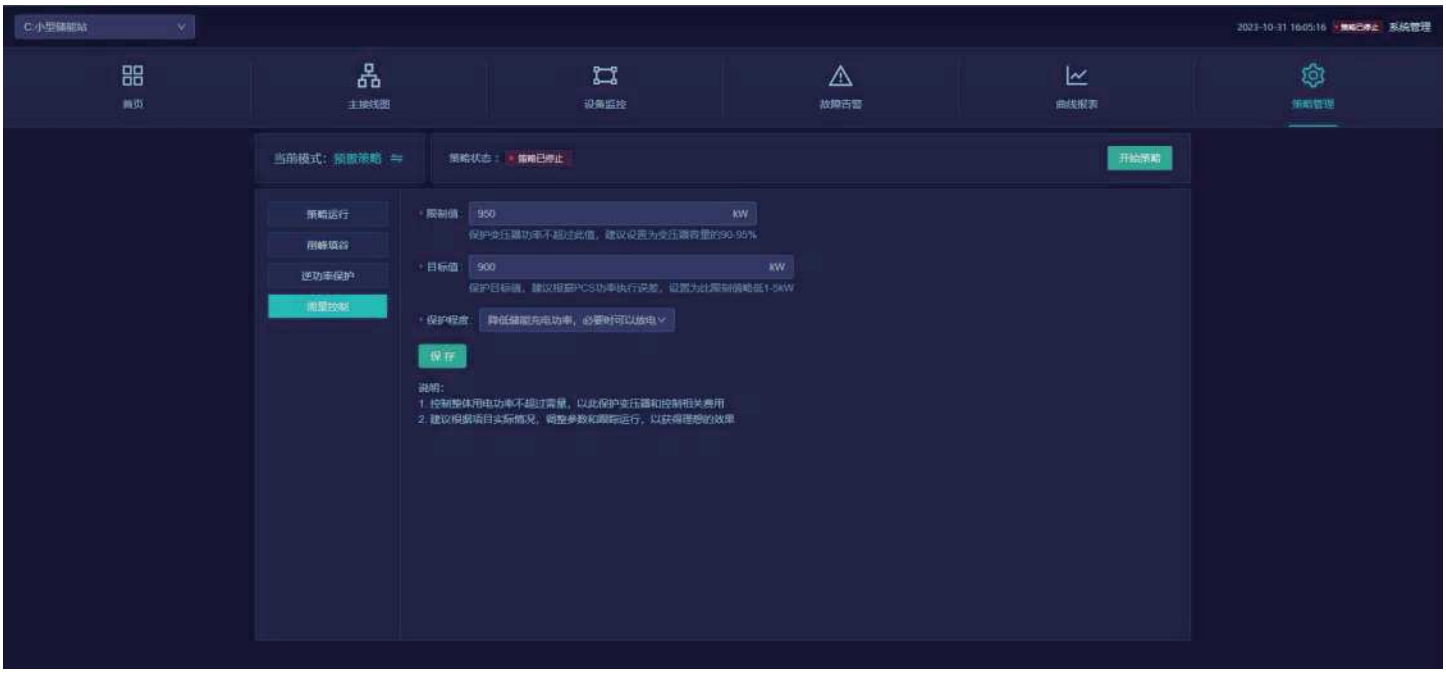
2.7.6 Strategy management

2.7.6.1 Preconfigyred strategy


C:小型储能站
2023-10-31 16:04:19
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
当前模式：预置策略
策略状态：
开始策略
策略运行
削峰填谷
逆功率保护
需量控制
投入策略
配置
削峰填谷
(默认)
当前运行
逆功率保护
当前运行
需量控制
当前运行


C:小型储能站
2023-10-31 16:05:04
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
当前模式：预置策略
策略状态：
开始策略
策略运行
削峰填谷
逆功率保护
需量控制
策略配置：削峰填谷
策略配置
按月
按日
编辑
1月
2月
3月
4月
5月
6月
2
测试AAAAC
测试AAAAC
测试AAAAC
2
停机
7月
8月
9月
10月
11月
12月
停机
停机
停机
停机
停机
停机
策略模板
2
23
3
33
4月28日
停机
测试AAAAC
+
开始时间
结束时间
充放功率（kW）
充电状态
00:00
15:59
0.0
待机
15:59
23:59
0.0
待机
SOC限制
SOC下限
10
%
SOC上限
100
%


C:小型储能站
2023-10-31 16:05:09
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
当前模式：预置策略
策略状态：
开始策略
策略运行
削峰填谷
逆功率保护
需量控制
限制值
120
kW
保护变压器功率不低于此值，建议设置为0
目标值
100
kW
保护目标值，建议根据PCS功率执行误差，设置为比限制值高1-5kW
保护程度
降低储能放电功率，必要时可以充电
保存
说明：
1. 电网不希望电站不经批准倒送逆功率到电网，因此电站需要有保护措施。
2. 建议根据项目实际情况，调整参数和模拟运行，以获得理想的效果



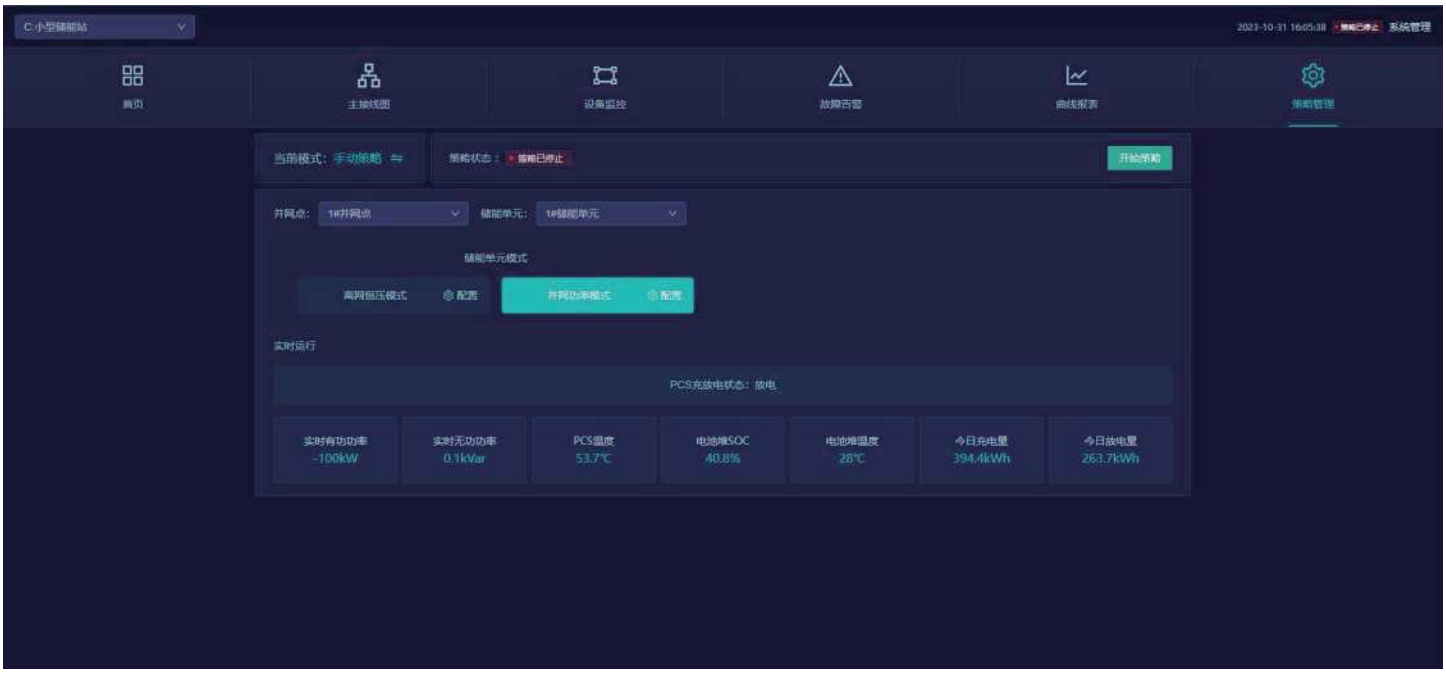
Module (in software)	Instructions
Strategies	• You can configure the current use of site policies, generally the main policy is peak shaving and the other policies are inverse power and demand protection.
lit. cut the peaks to fill the tills (idiom); fig. to cut down on peaks and fill in the gaps	• Policy Configuration: Policy usage can be configured on a daily or monthly basis, with the daily policy taking precedence. • Policy templates: customisable templates to define the charging and discharging power of the site for different time periods and the SOC protection. • Strategy Template Curve: Previewing Strategy Templates
Reverse power protection	• Protecting the total meter power from falling below the limit to avoid causing backflow ◦ Limit value: protection of the total meter power not lower than this value ◦ Target value: Set this target value slightly higher than the limit value by 1-5 kW, depending on the PCS execution error. ◦ Degree of protection: Action range can be set for protection

Demand control	• Protecting the total meter power from going too high above the limit to avoid over-demand. ◦ Limit value: protection of the total meter power not to exceed this value ◦ Target value: Set this target value slightly lower than the limit value by 1-5 kW, depending on the PCS implementation error. ◦ Degree of protection: Action range can be set for protection

2.7.6.2 Smart strategy

Module (in software)	Instructions
Smart strategy	• The basic parameters of the current site can be configured, and the system will automatically advance according to the parameters. Strategic planning to ensure economic operation.
Reverse power protection	• Protecting the total meter power from falling below the limit to avoid causing backflow ◦ Limit value: protection of the total meter power not lower than this value ◦ Target value: Set this target value slightly higher than the limit value by 1-5 kW, depending on the PCS execution error. ◦ Degree of protection: Action range can be set for protection
Demand control	• Protecting the total meter power from going too high above the limit to avoid over-demand. ◦ Limit value: protection of the total meter power not to exceed this value ◦ Target value: Set this target value slightly lower than the limit value by 1-5 kW, depending on the PCS implementation error. ◦ Degree of protection: Action range can be set for protection

2.7.6.3 Cellular Strategy



Module (in software)	Instructions
Energy storage unit model	• Policy Configuration: Configures the current energy storage unit mode and determines whether the operating state is off-grid or grid-connected, which is mainly used in testing scenarios. ◦ Grid departure mode: Grid departure mode, frequency and voltage are sent. ◦ Parallel Grid Mode: Downstream Power, SOC Upper and Lower Limits

2.7.7 System management

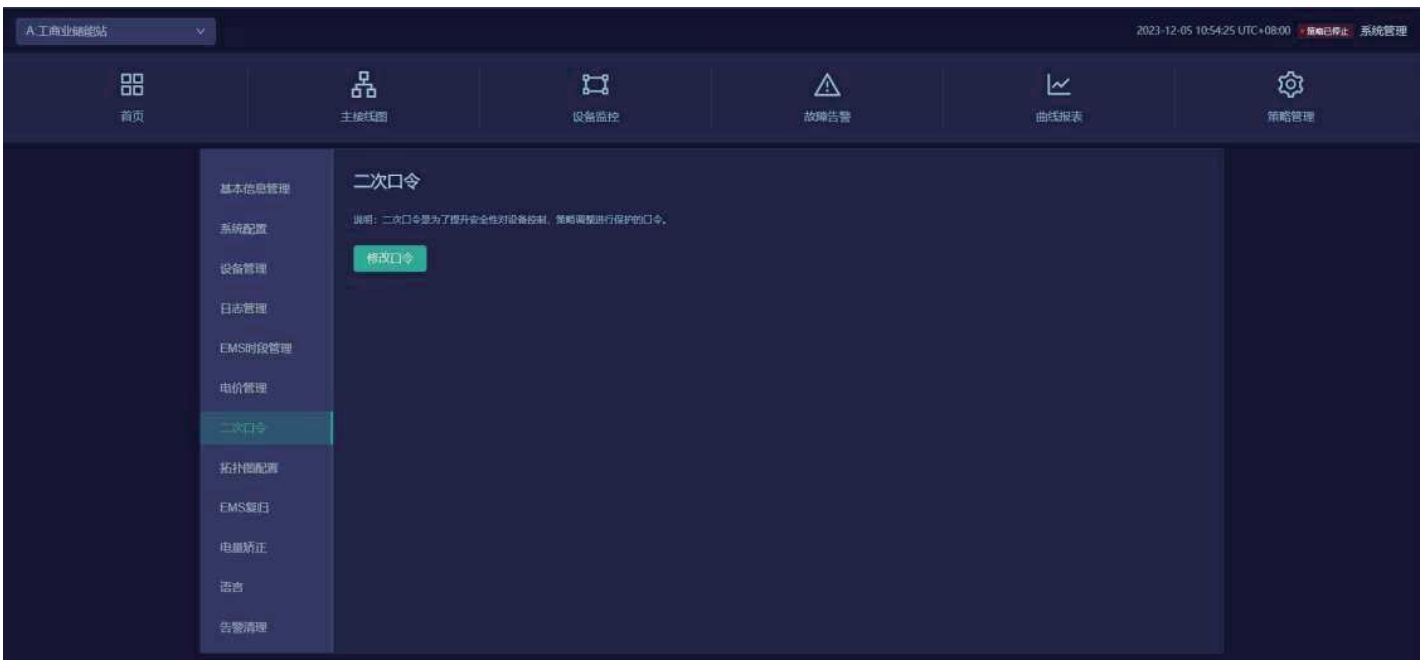

A.工商业储能站
2023-12-05 10:53:56 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
系统配置
下发系统和设备配置到站端EMS
站控层设备: 未配置
并网点: 1#并网点
下属单元:
1#储能单元
编辑更新

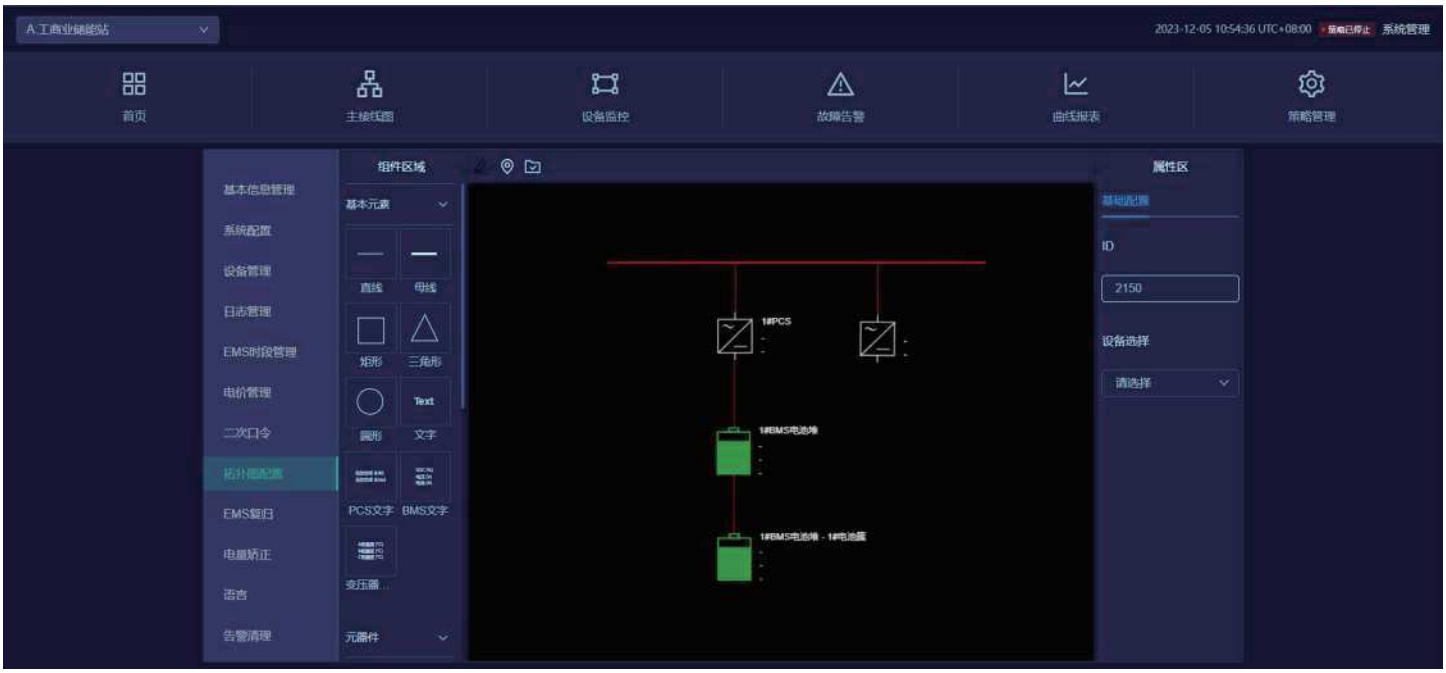

A.工商业储能站
2023-12-05 10:54:01 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
设备管理
设备列表
并网点: 全部
单元: 全部
设备类型: 全部
查询
重置
新增设备
序号 并网点 单元 设备类型 设备名称 厂商 型号 操作
1 1#并网点 1#储能单元 PCS 1#PCS 编辑 删除
2 1#并网点 1#储能单元 BMS电池堆 1#BMS电池堆 编辑 删除 电池信息
3 1#并网点 1#储能单元 空调 1#空调 编辑 删除
4 1#并网点 1#储能单元 双向电表 1#储能表 编辑 删除 更换电表
5 1#并网点 1#储能单元 双向电表 1#总表 编辑 删除
6 1#并网点 1#储能单元 双向电表 1#负载表 编辑 删除

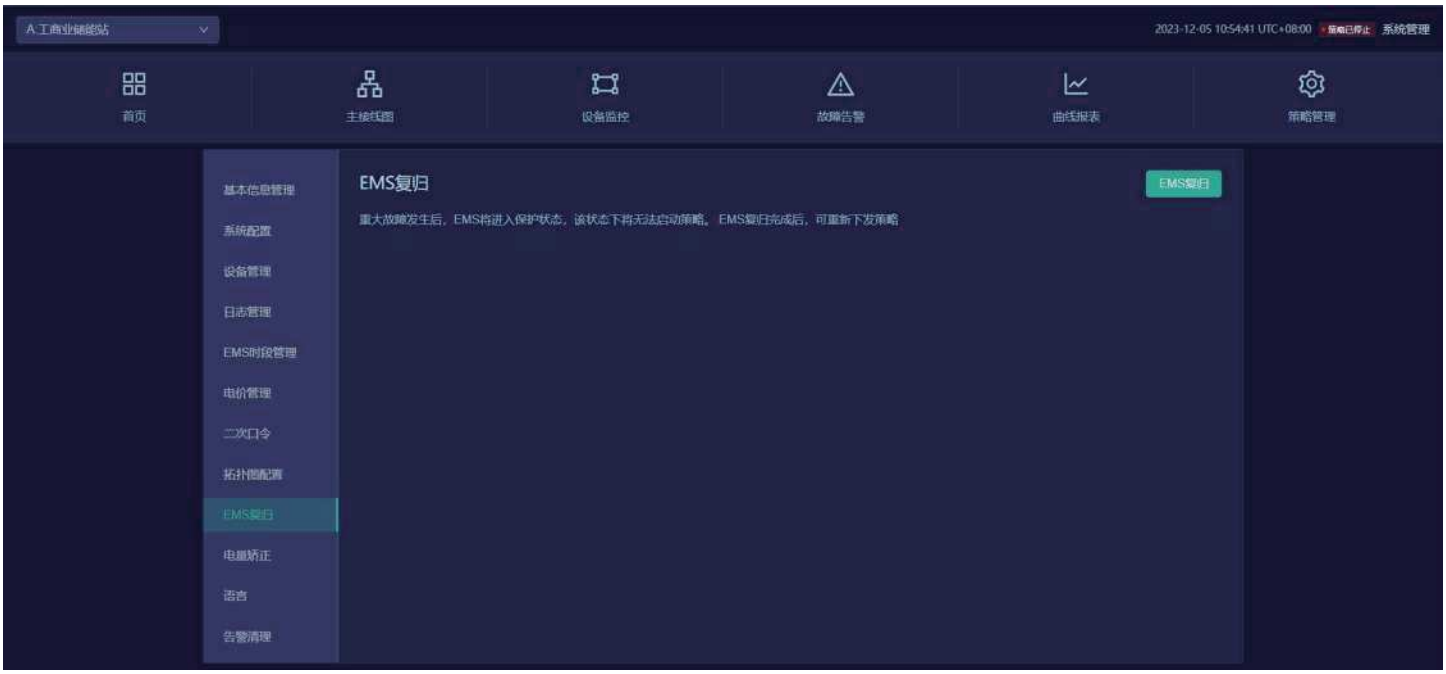

A.工商业储能站
2023-12-05 10:54:08 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
日志管理
操作日志
日期: 2023-11-28 ~ 2023-12-05
查询
重置
时间 操作内容 账号
2023-12-01 15:49:12 [策略] 停止策略 (智能策略) admin
2023-12-01 15:49:12 [策略] 切换策略 (智能策略) admin
2023-12-01 15:14:30 [策略] 停止策略 (削峰填谷) zhangning
2023-12-01 15:14:29 [策略] 切换策略 (削峰填谷) zhangning
2023-12-01 15:11:59 [策略] 停止策略 (智能策略) zhangning
2023-12-01 15:11:58 [策略] 切换策略 (智能策略) zhangning
2023-12-01 09:14:44 [策略] 启动策略 (削峰填谷) zhangning

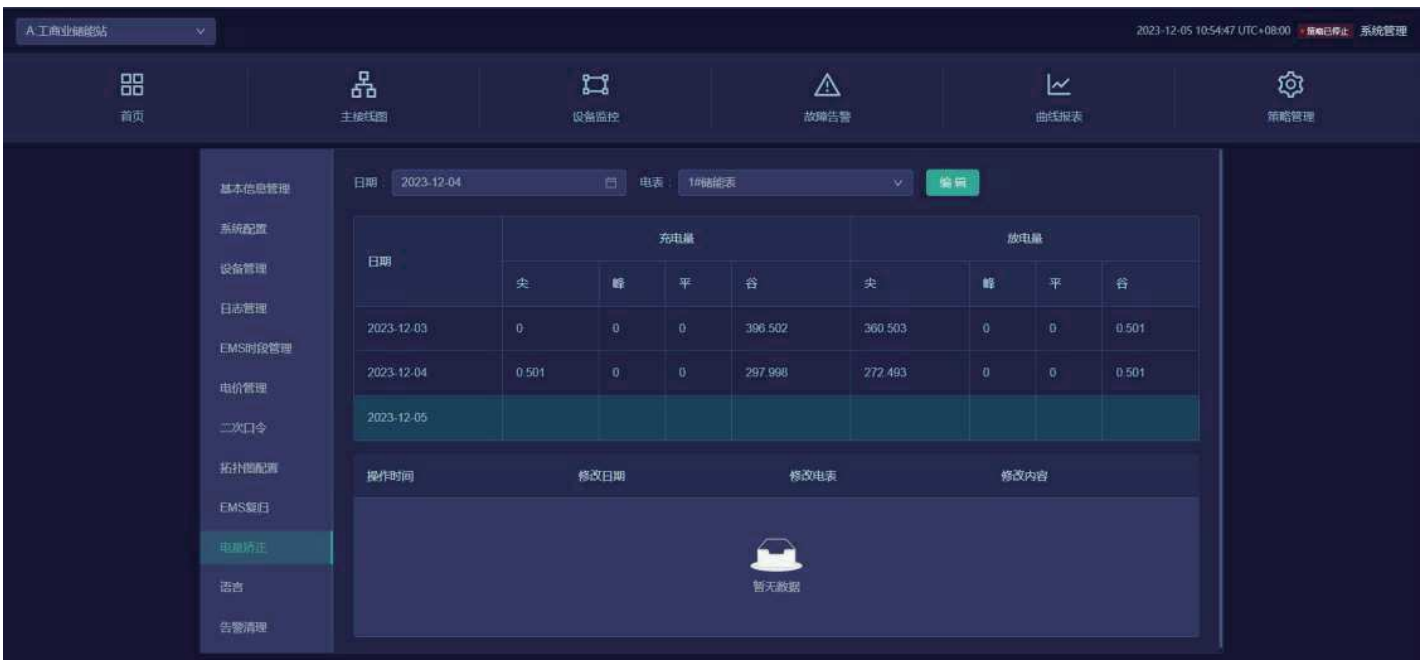

A.工商业储能站
2023-12-05 10:54:15 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
EMS时段管理
当前EMS时段
时段管理
修改记录
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
不计费
尖
峰
平
谷
开始时间
结束时间
时段说明
00:00 08:00 谷
08:00 09:00 峰
09:00 11:00 尖
11:00 13:00 谷
13:00 15:00 尖
15:00 17:00 尖

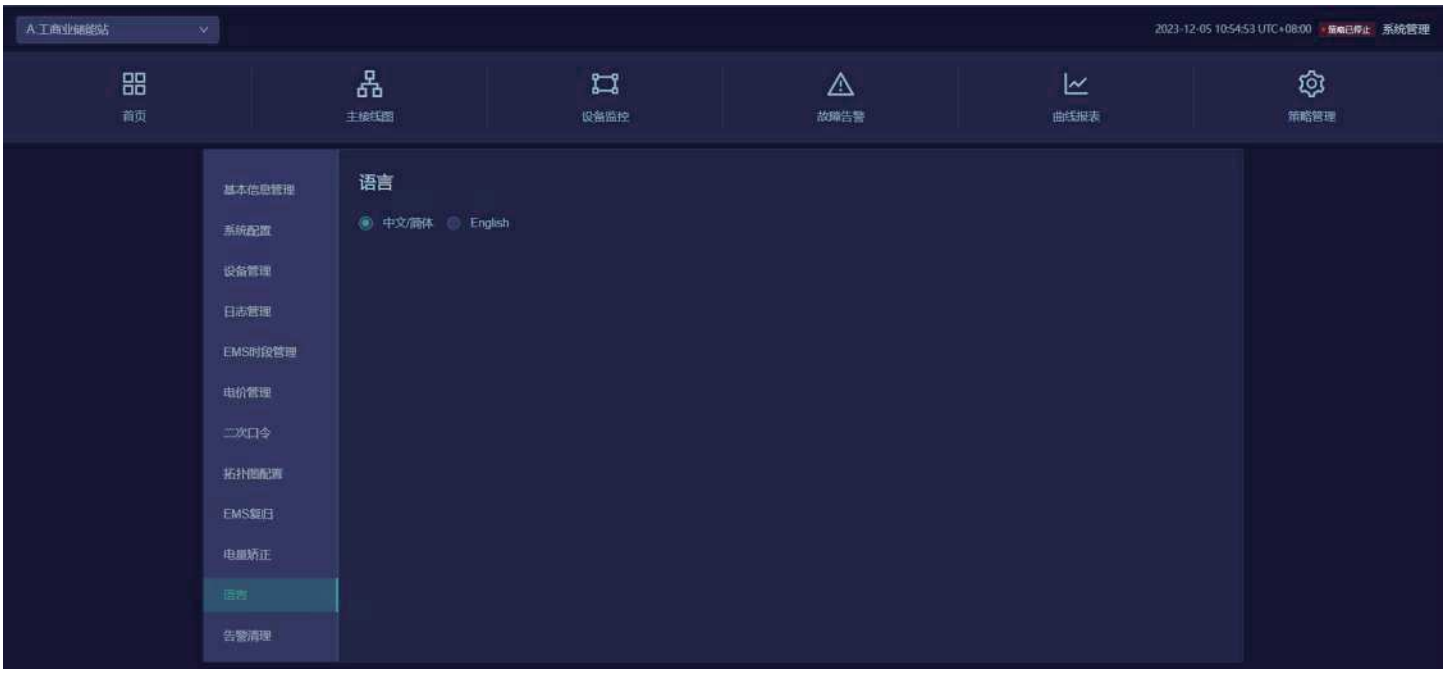

A.工商业储能站
2023-12-05 10:54:20 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
电价管理
进入编辑模式
月份
买入电价(元/kWh)
卖出电价(元/kWh)
尖 峰 平 谷 尖 峰 平 谷
1月 2 2 0.5 0.5 2 2 0.5 0.5
2月 2 2 0.5 0.5 2 2 0.5 0.5
3月 2 1.1 1 0.4 1.5 1.1 1 0.4
4月 2 2 0.5 0.5 2 2 0.5 0.5
5月 2 2 1 0.5 2 2 1 0.5
6月 2 2 0.5 0.5 2 2 0.5 0.5
7月 2 2 0.5 0.5 2 2 0.5 0.5
8月 2 2 0.5 0.5 2 2 0.5 0.5


A.工商业储能站
2023-12-05 10:54:25 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
二次口令
说明：二次口令是为了提升安全性对设备控制，策略调整进行保护的口令。
修改口令

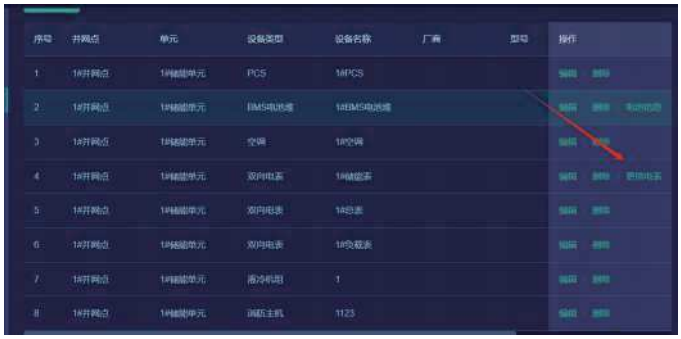

A.工商业储能站
2023-12-05 10:54:36 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
组件区域
基本元素
直线
母线
矩形
三角形
圆形
文字
PCS文字
BMS文字
变压器
元器件
1#PCS
1#BMS电池簇
1#BMS电池簇 - 1#电池簇
属性区
基础配置
ID
2150
设备选择
请选择


A.工商业储能站
2023-12-05 10:54:41 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
EMS复归
EMS复归
重大故障发生后，EMS将进入保护状态，该状态下将无法启动策略。EMS复归完成后，可重新下发策略

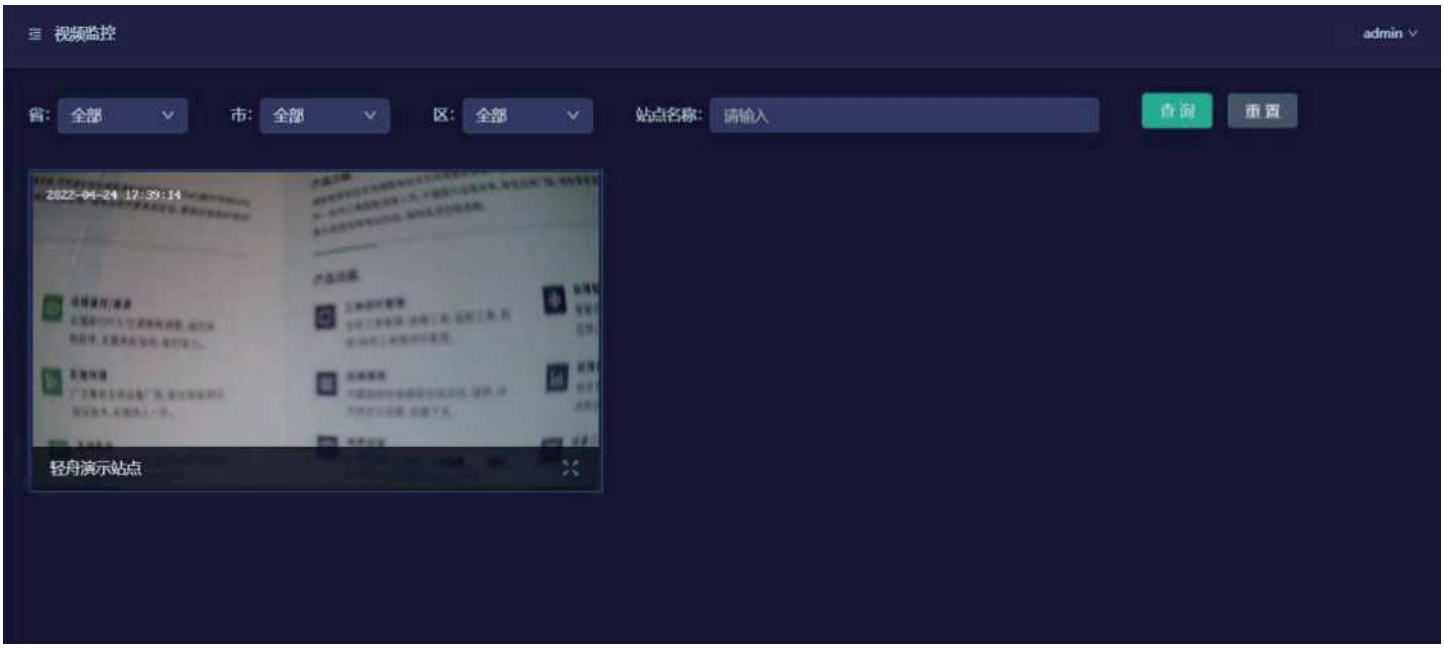

A.工商业储能站
2023-12-05 10:54:47 UTC+08:00
策略已停止
系统管理
首页
主接线图
设备监控
故障告警
曲线报表
策略管理
基本信息管理
系统配置
设备管理
日志管理
EMS时段管理
电价管理
二次口令
拓扑图配置
EMS复归
电量矫正
语言
告警清理
日期
2023-12-04
电表
1#储能表
编辑
日期
充电量
放电量
尖
峰
平
谷
尖
峰
平
谷
2023-12-03
0
0
0
396.502
360.503
0
0
0.501
2023-12-04
0.501
0
0
297.998
272.493
0
0
0.501
2023-12-05
操作时间
修改日期
修改电表
修改内容
暂无数据



Module (in software)	Instructions
Basic Information Management	• Manage basic site information data
System Configuration	• Configuring the site energy structure
Equipment management	• Site equipment management • Meter Replacement: Click on Meter Replacement and fill in the end time of the meter and the time of entry of the new meter. The system will automatically create a new meter and start the new meter at 0:00 o'clock on the entry date, start the meter at the end time, and inherit the rest of the attributes from the meter. After the meter is discarded, the device data is locked and will not be deleted.

	  • Adding a New Meter: Fill in the ratio of electric energy figures for accounting purposes. If 1 is entered, the energy is the same as the value shown on the meter, and if 50 is entered, the energy is 50 times the value shown on the meter.
Date management	• Record the date of important operations
EMS time slot management	• Current EMS Period: The period of time during which the current EMS has taken place. • Time slot management: Configure EMS time slots • Modification logs: logs of the operations configured for the time period
Tariff regulation	• Configuration of time-of-use tariffs
Second Password	• Two passwords can be modified.
Topology Map Configuration	• Configuration of strong electrical structures
EMS reversion	• EMS reversion operation
Electricity Correction	• Compatible with meter power data error cases, which can be corrected manually
Language language	• Language-switchable, supports English and Chinese
Alarm Clearance	• Alarms can be cleared for a fixed period of time

2.8 Surveillance Centre-Video Surveillance



	Logos
Enquiry area	• Filter queries by province/city/district, click the "Query" button to query the filter conditions, click the "Reset" button to clear all filters and display the default status (the default status is All), and display the real-time video surveillance of all sites according to the filtered range. Video Surveillance • Fuzzy matching can be performed by manually entering the site name.
Video grid	• Defaults to low bitrate, no control panel, site name displayed at bottom of video • Double-click the zoom icon at the bottom right of the monitor to zoom in, and there is a dial at the bottom right of the screen to move it. • Video surveillance can only be viewed by plants with a camera; plants without a camera are not shown here.

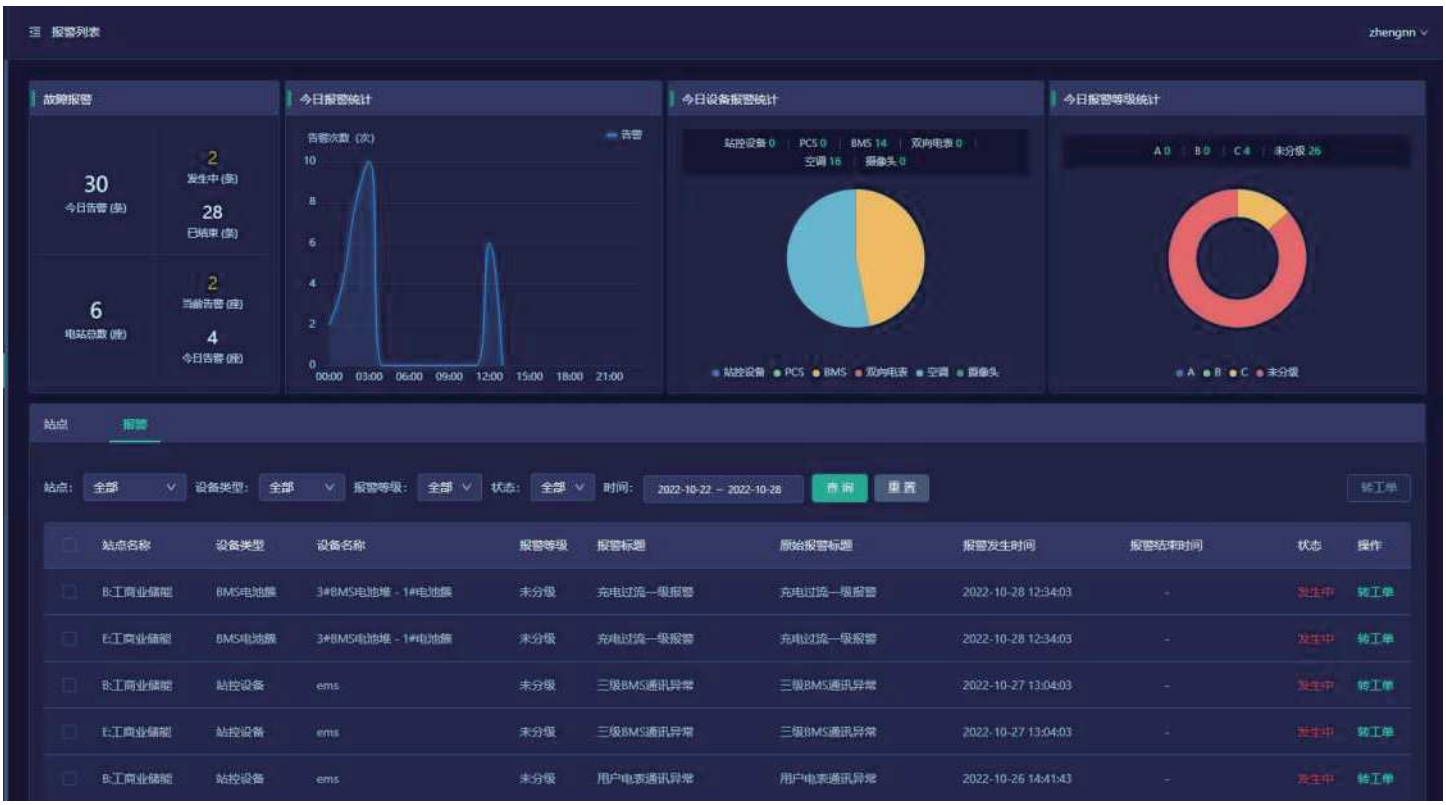
2.9 Centralised Management

	Logos

Enquiry area	• Filter queries by province/city/region, click the "Query" button to query the filter conditions, and click the "Reset" button to clear all filters and display the default state (the default state is all). • Fuzzy matching can be performed by manually entering the site name.
Batch operation	• Batch configuration of tariffs can be performed for selected power stations.

2.10 Alarms - Fault Alarms

2.10.1 Fault Alarm-Alarm List



	Logos
Today's indicators	• Indicators of today's warning, indicators of today's warning power stations • Today's alarm statistics: Display the number of multi-station alarms from 0 to 24 hours. • Device alarm statistics for today: Statistics on the percentage of devices with alarms from 0:00 a.m. to the current moment in time. • Alarm level statistics for today: Statistics on the ratio of different alarm levels from 0:00 a.m. to the current moment in time.

Site tab	• Alarm statistics are performed on a site-by-site basis. • Enquiry: Provincial and municipal level • List: Display the number of different alarm states and different alarm levels • Sorted by site name in 10 rows.
Alarm tab	• Multi-station alarm statistics by alarm dimension • Query Area: Power Stations: Initial Default All 1. Alarm level is divided into ABC unclassified 4 categories (class classification standard database direct allocation) initial default is all 2. Device type: initial default is all (device type database reads) 3. The status is categorised as either in progress or completed, with the initial default being all. 4. Time to day (default is within 7 days, maximum filtering range is not more than 15 days) • List: 1. The table is sorted in descending order based on the time the alarm was created. 2. The single column is divided into 10 columns. 3. Alarms with status in your organisation can be batch-transferred, in the Ticketing List this is the Trouble Ticket type.

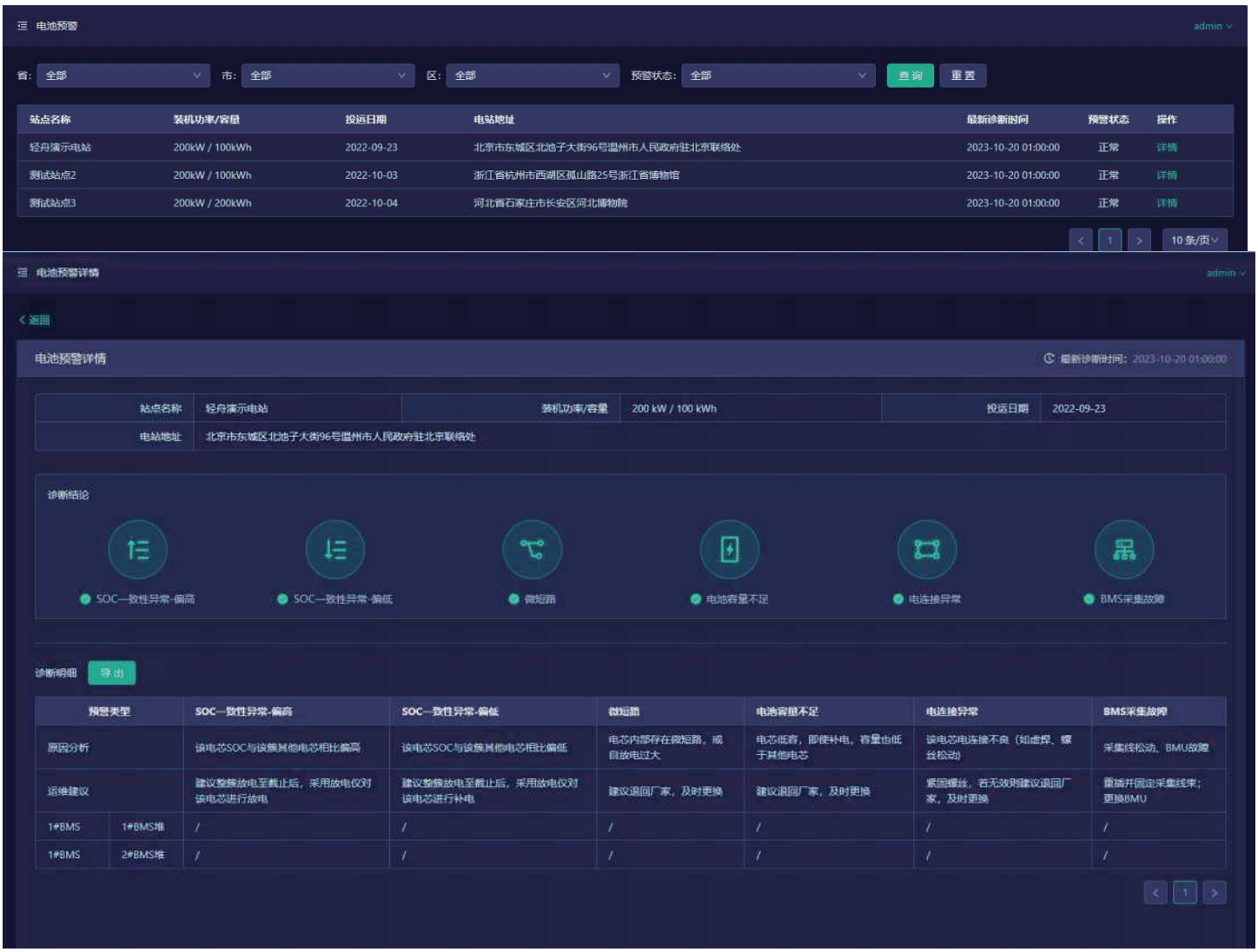
2.10.2 Fault Alarms - Alarm Statistics

Module (in software)	Instructions
nquiry area	• Filter queries by province/city/region, click the "Query" button to query the filter conditions, and click the "Reset" button to clear all filters and display the default state (the default state is all).
Warning status	• Display the ratio of alarm status of multiple stations in different time dimensions in the months and years, default is in the month and year, and can be manually filtered. • Status: In progress and completed
Warning level	• Display the ratio of alarm levels of multiple stations in different time dimensions for the month and year, with the default month being the current year, and manual filtering available • Levels are classified as Fault A, Alarm B, Warning C and Unclassified
Equipment type	• Display the ratio of multi-station alarm device types in different time dimensions for the month and year, with the default month being the current year, and manual filtering available • The device type is written from the database
Historical Failure Times	• Displays historical failure time trends for multiple stations in different time dimensions for the month and year, with manual filtering by default for the current month and year. • If an alarm is in progress, the number of hours between 0 and 24 is taken from the day of the event.
Retrieve a value	• The above figures do not include the current day and are as of 24:00 yesterday.

2.10.3 Fault Alarm-Notification Management

Module (in software)	Instructions
Listings	• Display alarm type (so far only 4 fault alarm types + battery warning are supported), alarm frequency, notification method, per Date notification limit, notification recipients, last modification time • Click "Edit" to modify the alarm type, alarm frequency, notification method, daily notification limit, and notification receiver. • Click "Delete" to delete the configuration.
Configuration area	• Alarm level: Set the alarm level to be notified, the selected alarm level can not be selected, if you want to change it, you need to edit it. • Push frequency: set high, medium and low frequency notifications • Notification method: Select the push method to be notified via APP/SMS. • Maximum number of date notifications: configure the maximum number of entries • Notification人：Select alarm notification人（Multiple accounts can be selected）.

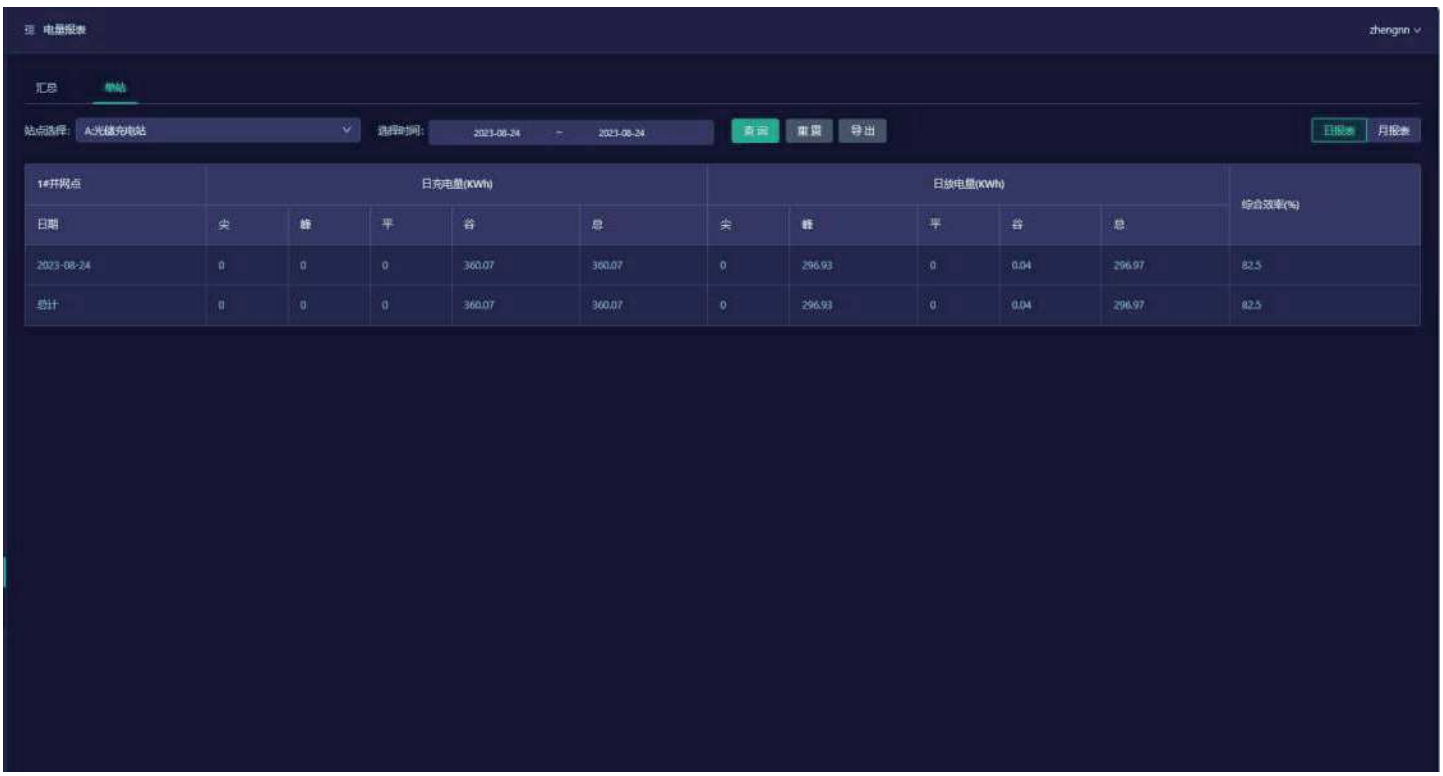
2.11 Battery Alert for Alcohol



Module (in software)	Instructions
Consult (a document etc)	• Enquiry: Provincial and municipal cascades
Listings	• Display of fields: site name, installed power/capacity, date of commissioning, station address, latest diagnostic time, warning status, operations • Check the battery status of yesterday's day by running the timer in the early morning of each day. • The current algorithm is only valid for lithium iron phosphate batteries, lead-acid batteries may be biased
Particulars	• You can view the conclusions of the site battery diagnostic details, and if there are abnormal data, click on the corresponding unit to display the temperature and voltage curves of the unit.

2.12 Analyse Center - Statistical Reports

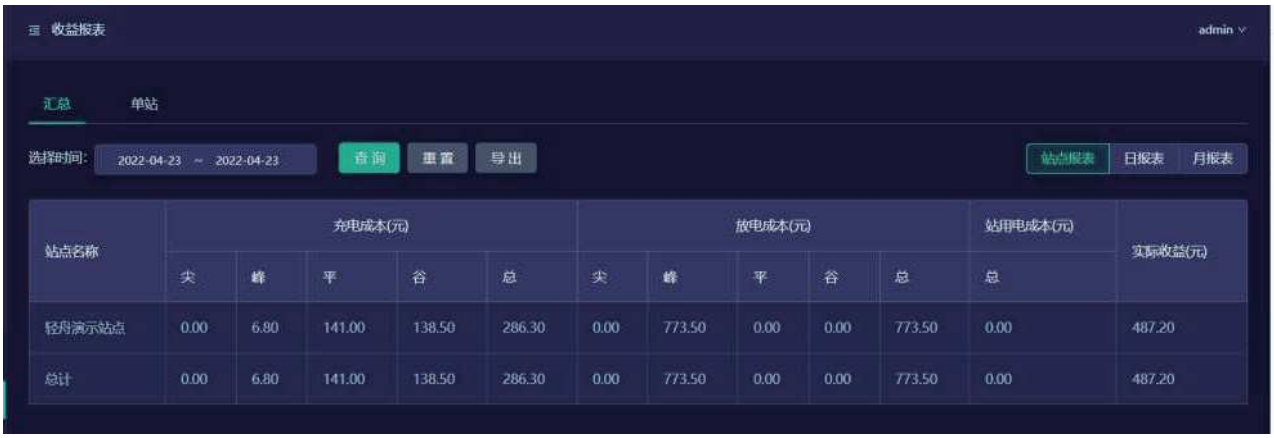
2.12.1 Statistical Reports - Electricity Reports



	Logos
Contents of the interface	• In the power report, you can view the charging and discharging volume of each station for a selected time period (default day).
Multi-Site/Single-	

Site Switching	• Click the "Summary" tab in the tab bar to view the power consumption of each power station managed by this account; click the "Single Station" tab to view the power consumption data of a power station and its grid connection points. Click the "Single Station" tab to view the power data of a certain station and its grid points. On the single station screen, click the site selection drop-down box on the upper-left to switch sites.
Data field	• Daily charging capacity during peak hours, daily discharging capacity during peak hours, daily station usage, and overall efficiency. The unit of electricity is kWh, and the unit of overall efficiency is %.
Data sources	• Discharge: total active energy in reverse at the measurement point of a bi-directional meter • Charge: total positive active energy for which the measurement point is a bi-directional meter • Combined efficiency: total discharge/total charge*100%;
Time dimension	• Click to toggle the "Daily" and "Monthly" tab bars to switch between displaying data by day and month. You can select a specific time range in the time selection box.
Derive	• Click the "Export" button to export to an Excel sheet.

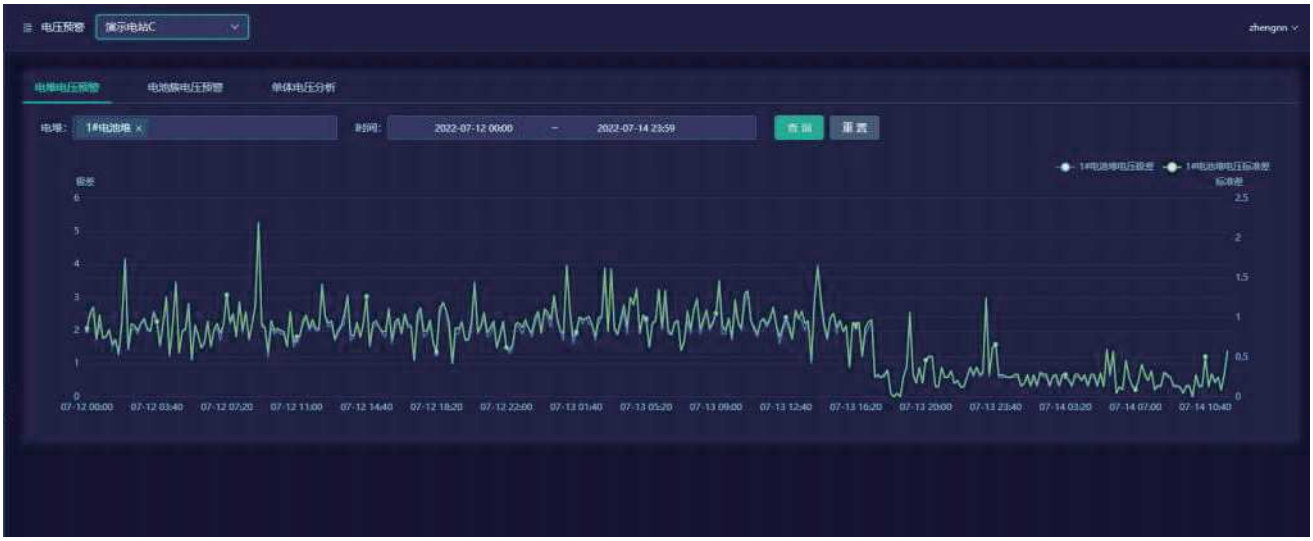
2.12.2 Statistical statements -- statement of income



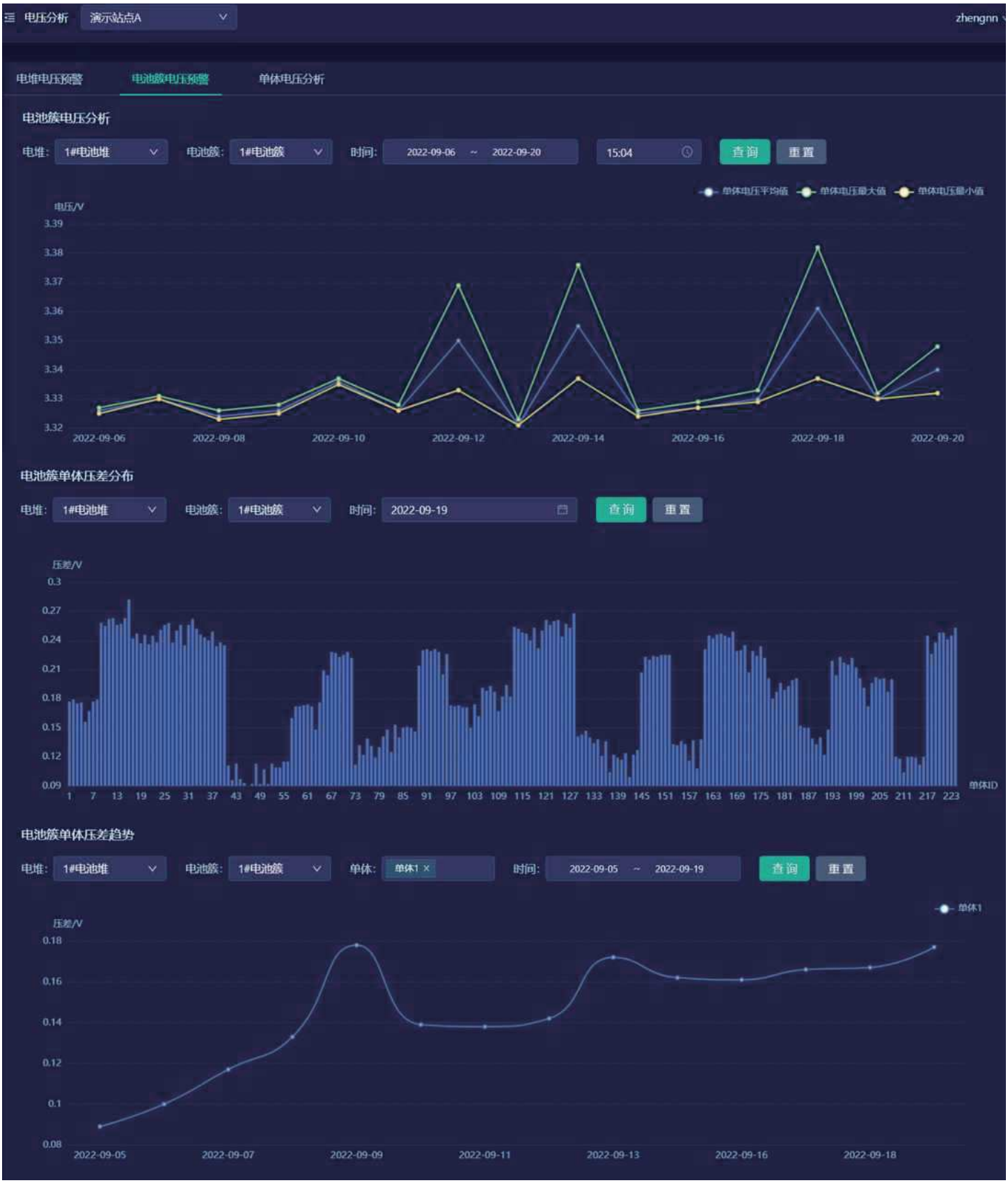
	Logos
Contents of the interface	• In the income statement, you can view the expenses and income of each power station for a selected period of time.
Multi-Site/Single-Site Switching	• Click the "Summary" tab in the tab bar to view the power consumption of each power station managed by this account; click the "Single Station" tab to view the power consumption data of a power station and its grid connection points. Click the "Single Station" tab to view the power data of a certain station and its grid points. On the single station screen, click the site selection drop-down box on the upper-left to switch sites.
Data field	• Daily charging cost per peak hour, daily discharge revenue per peak hour, daily station electricity cost, and actual revenue. The units are all in MYR (RMB).
Data sources	• Cost = Purchase unit price for charging capacity = Purchase price for charging peak power + Purchase price for charging peak power + Purchase price for charging levelling power + Purchase price for charging peaking power. • Revenue = Discharge Tip Tariff * Discharge Tip Volume + Discharge Peak Tariff * Discharge Peak Volume + Discharge Levelling Tariff * Discharge Levelling Volume + Discharge tariff * Discharge quantity - (Charge tip tariff * Charge tip quantity + Charge peak tariff * Charge peak quantity + Charge levelling tariff * Charge levelling quantity + Charge levelling quantity + Charge levelling tariff * Charge levelling quantity) • The BID/OUTPUT tariff for peak levelling is set by the user in the single station monitor according to the actual situation.
Time dimension	• Click to toggle the "Daily" and "Monthly" tab bars to switch between displaying data by day and month. You can select a specific time range in the time selection box.
Derive	• Click the "Export" button to export to an Excel sheet.

2.13 Analyse Center - Battery Analysis

2.13.1 Battery Analysis - Voltage Analysis



	Logos
Reactor Voltage Warning	Polar deviation: maximum cluster voltage - minimum cluster voltage for the stack Standard deviation: σ = sqrt(((x1-x)^2 + (x2-x)^2 + (xn-x)^2)/n) (x is the average of the voltage of the cluster of cells under the stack) value, n is the cell cluster, and xn is the cell cluster voltage)



Battery Cluster Voltage Warning	• Legend 1 shows the average value of the cluster's individual voltages, Legend 2 shows the maximum value of the cluster's individual voltages, and Legend 3 shows the cluster's individual - Differential pressure distribution: (daily) maximum Voltage minimum individual cell voltage - minimum individual cell voltage - Differential pressure trend for a single unit: Differential pressure distribution trend for the same unit at different dates.

	Logos
Monomer Voltage Analysis	• Individual Voltage Distribution: Plot the voltage distribution of all the individual cells in the cluster according to the specific time selected, down to the second. • Evaluation criteria can be set for individual voltages to filter out the consistency of individual voltages within a cluster, making it easy to filter out cells with poor consistency in a timely manner. • Individual Voltage Curve: Plot the trend of voltage curve of the same individual cell at a specific time in a certain date period.

2.13.2 Battery Analysis - Current Analysis

	Logos
Reactor current warning	• Polarisation: Maximum cluster current - minimum cluster current for the stack • Standard deviation: σ = sqrt(((x1-x)^2 + (x2-x)^2 + (xn-x)^2)/n) (x is the current of the cell cluster under the stack) (mean value, n is the cell cluster, xn is the cell cluster current)

2.13.3 Battery Analysis - Temperature Analysis

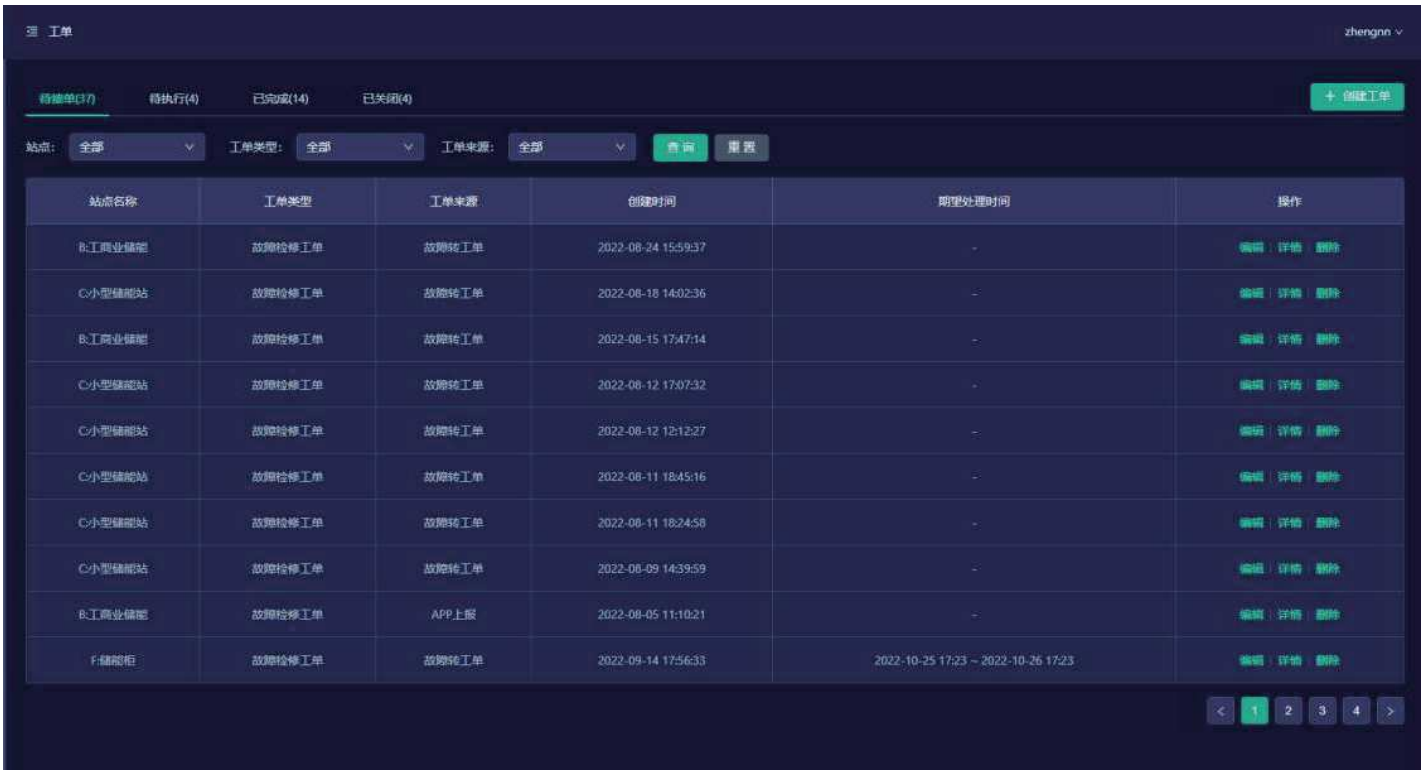
	Logos
Battery Cluster Temperature Warning	• Temperature difference analysis: Performs multi-day temperature contrast analysis for all units in a cluster at a given time. • Temperature difference warning: Display the temperature trend of multiple clusters in the pile over a period of time. • Individual Temperature Rise Warning: Displays the temperature rise trend of multiple individuals in a cluster over a period of time.

	Logos
Monomer temperature analysis	• Individual Temperature Distribution: Displays the temperature of all individual cells in the cluster at a given time, and supports the configuration of evaluation criteria to analyse and display individual temperature uniformity. • Individual Temperature Curve: Shows the trend of temperature change at the same moment in time over the daily range of multiple individuals in a cluster.

2.13.4 Battery Analysis - Backward Battery Statement

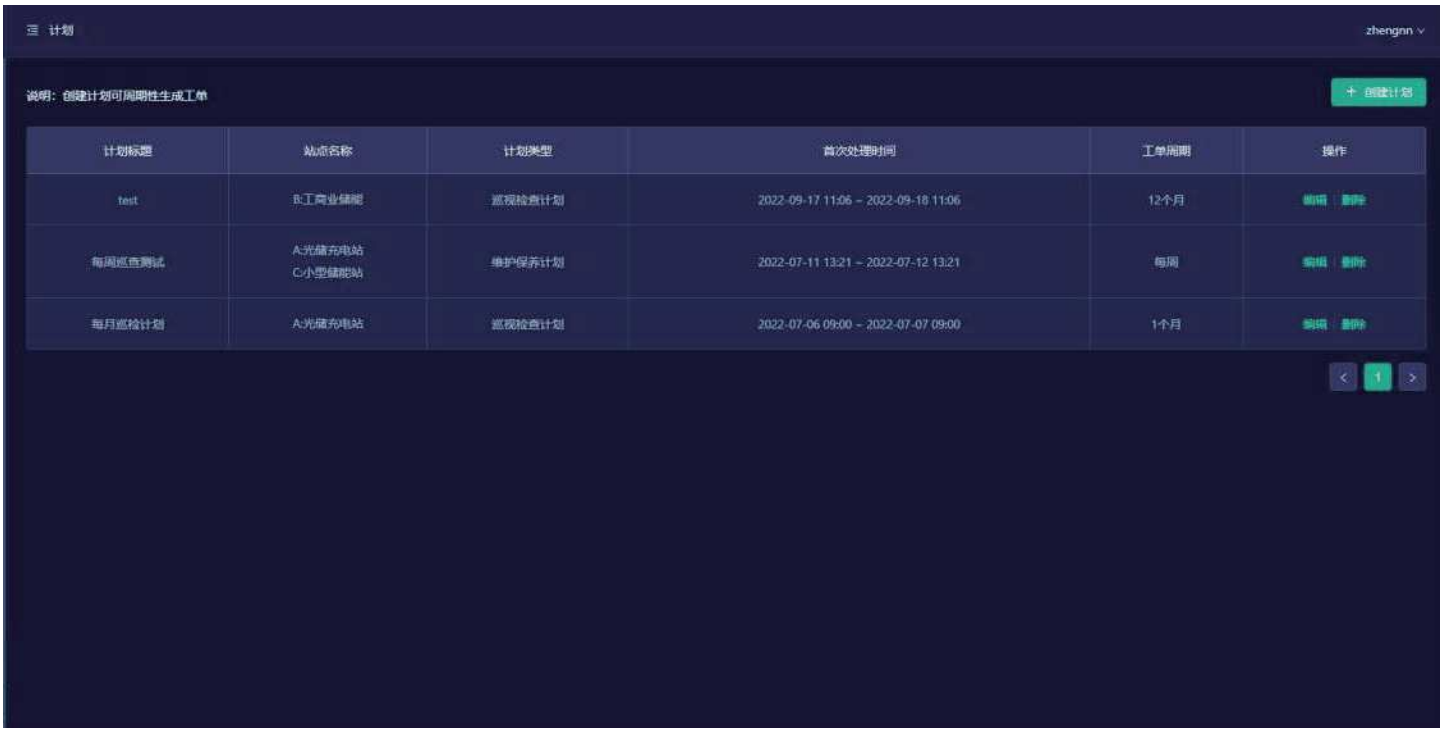
	Logos
Enquiry area	• Defaults to the first stack, defaults to yesterday's date.
Forms for reporting statistics	• Iterate through all cell clusters and find the 5 cells in the cluster with the lowest voltage on that day, sorting them by voltage from lowest to highest.
Derive	• Result table export excel file name: Backward Battery Report A time - B time

2.14 Operations Centre - Tickets



Module (in software)	Instructions
Tab bar	• 4 types of single state tab switching • The value after the status indicates the cumulative number of pending orders from the time of entry into the cloud platform.
Enquiry area	• Power stations, default all, filterable • Ticket type, default all, filterable • Ticket Sources: All by default, Troubleshooting Tickets, APP Reporting, Scheduled, Manually Created (Ops Reporting refers to Tickets created directly by Ops on the APP side)
Tabular	• Creation time is the time of manual creation, plan creation, alarm transfer, and troubleshooting in the O&M App. • Desired Processing Time: Set when creating a job on a scheduled/manual basis • Actions: Click Details to view the details of the work order, progress flow, and execution details; click Edit to edit the work order; click Delete to delete the work order. • 10 articles in a row, scroll down to view • Priority: orders to be received/exec uted 1. Optimal sorting with no expectation of processing time (mostly for troubleshooting tickets), prioritised according to the latest time of creation of the ticket 2. Prioritised according to the latest time of the start time of the desired processing time if there is a desired processing time Completed: Prioritised according to the latest time of the completion time Closed: Prioritised according to the latest time of closure

2.15 Operations & Maintenance - Programme

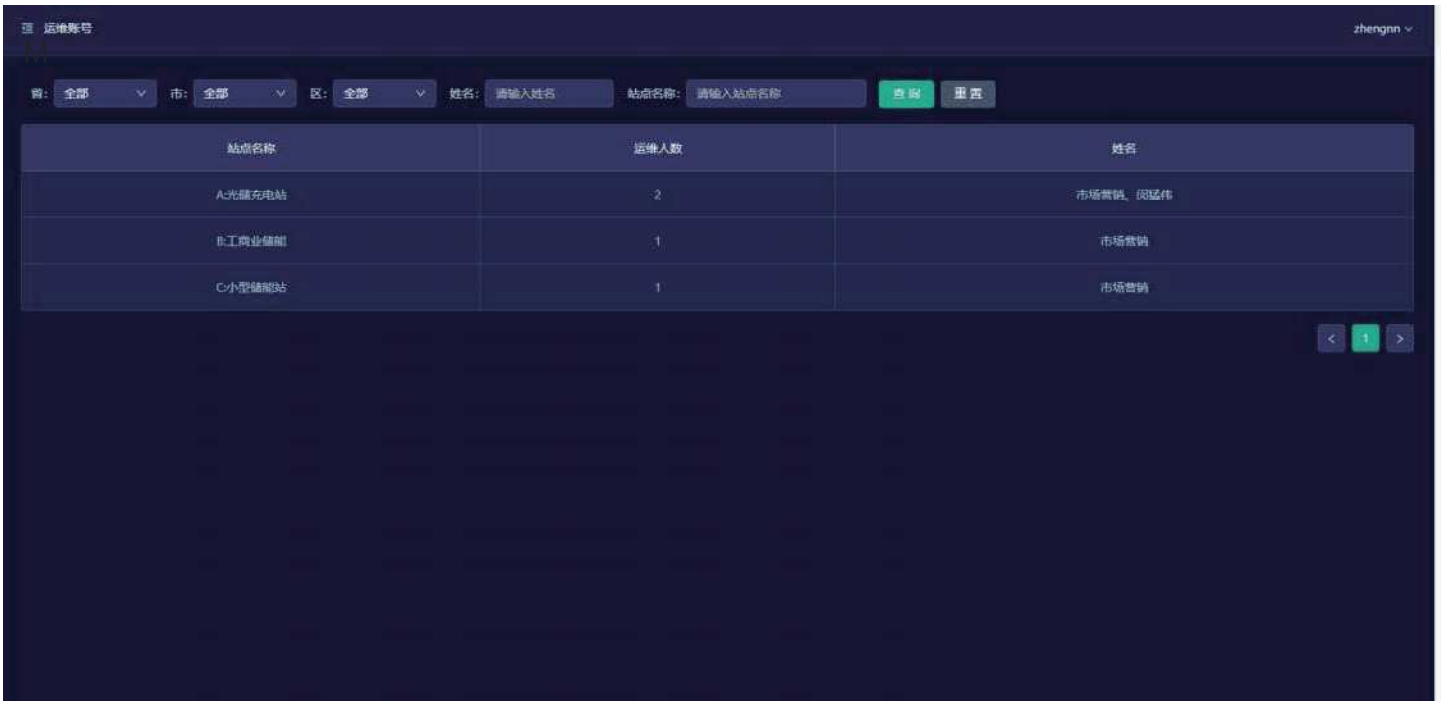


Module (in software)	Instructions
Listings	• Inspection programme / Maintenance programme • First processing time: the start date cannot be earlier than the current date, the time can be modified to the minute, the current moment is the start time by default, and the end time is 24 hours later. • Period: daily/weekly/1 month/3 months/6 months/12 months, single selection only, default weekly • If there are more than one power station in a programme, one power station creates a work order. • Brief description of the programme in 50 characters or less.
Scheduled time	• In the case of a scheduled order, the system will enter the order into the Pending Order List at the last second of the night before the start of the first processing time, e.g. if the start of the first processing time is 2022-06-20 09:00, then the web will be created on 06-19 23:59:59. If the first Processing Time is on the same day, the time must not be earlier than the current moment and the job is created immediately, and thereafter the job is created on a periodic basis.

2.16 Operations & Maintenance - Operations & Maintenance Mapping

Module (in software)	instructions
Listings	• There is a need for data segregation between companies, with each company having an initial repository with the same content. • Delete: a second confirmation pop-up box like "Delete or not" is required. • Query Area: Fuzzy Search Query Association Rule: In order to establish the connection between the fault O&M instruction and the alarm ticket, it is necessary to select which alarms of which device this fault manifestation corresponds to. For example, "BMS Over Temperature" may correspond to the over temperature telemetry of the BMS stack. For example, "BMS over-temperature" may correspond to the over-temperature telemetry of the BMS stack. For example, "BMS over-temperature" may correspond to the over-temperature telemetry of BMS power plant. Note that the data source is a general alarm database, and does not distinguish between stations. (O&M experience should be that this is common to all stations and should not be site specific).

2.17 Aquarium - Maintenance Account



Module (in software)	Instructions
Inspection Logo	• Query: site name, name, fuzzy query • List: Site name, number of operators, name, and 10 entries in a row. Other: if the power station is deleted, the column is deleted in its entirety and is not shown in the list; if the bound O&M account is frozen or deleted, it is not shown in the table and the table is updated with the most recent status.

2.18 Operations Centre - Response Management

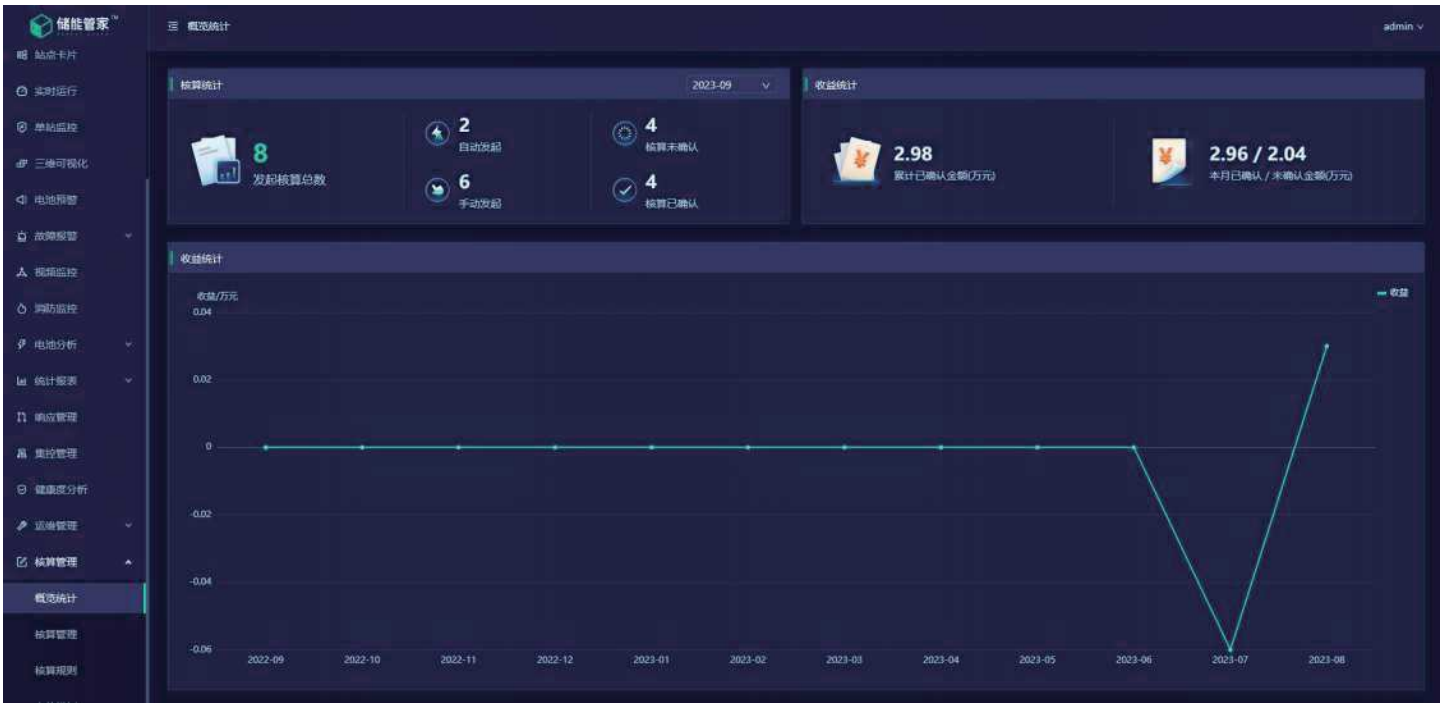
	Logos
Response today	• Power curve from 0:00 a.m. today to the current moment • Legend 1 shows the real-time power curve • Legend 2 shows the output power, i.e. the sum of the power of multiple responding power stations • A light orange block indicates the response time period.
Overview data	• Dispatch number, time of command, target power in real time, total power executed, as well as the amount of discharging and charging responded to on this day
In response to a command	• List of commands currently being responded to

Power station distribution	• Display the power distribution of the power station under this command. • Click on the power graph to view the daily power graph of a single station.
Responded to command	• List of commands that have been responded to

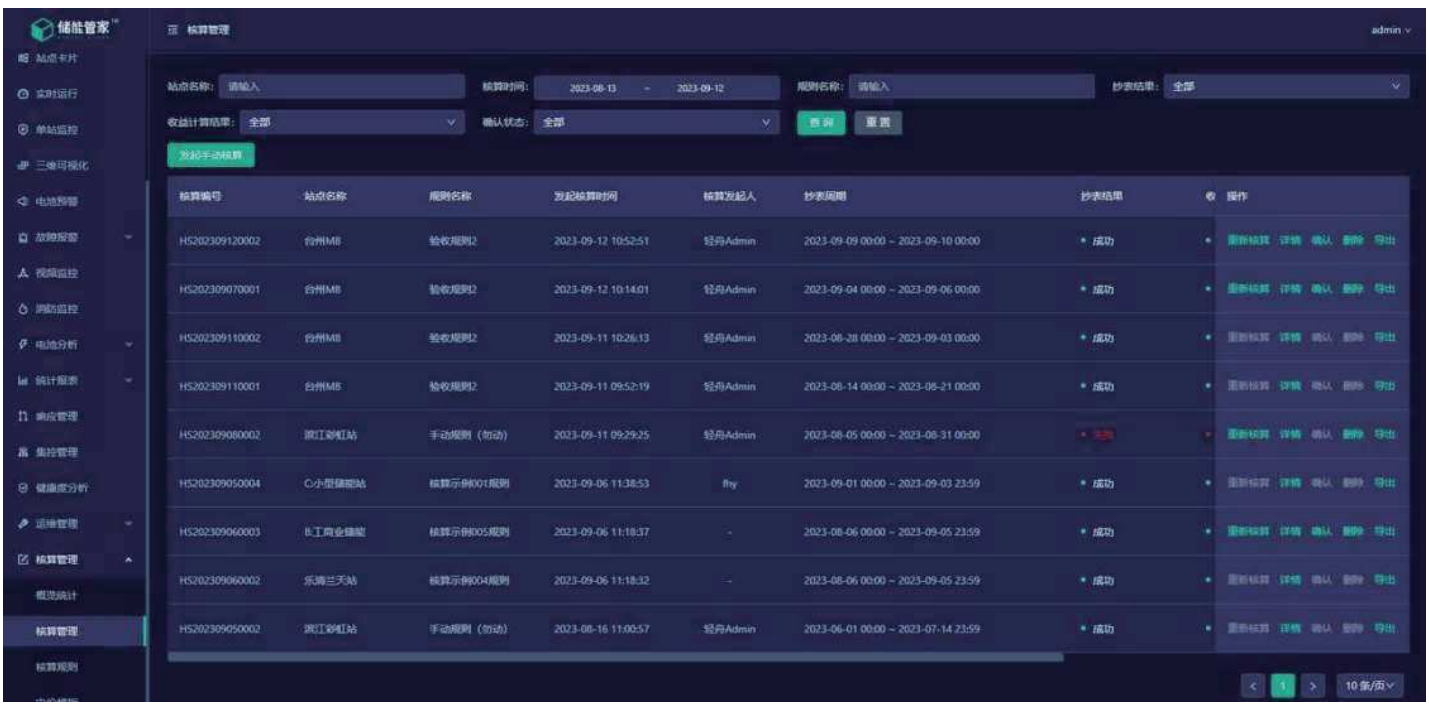
	Logos
MINGDAI Response	• Displays dispatch number, command mode, time of command, appointment response time, target power and countdown time • The countdown ends and automatically enters response mode.

	Logos
Historical Response - Statistical Analysis	• Display cumulative number of successful responses, duration, charge/discharge amount
Response log	• Search the response record of a power station by date and station. • Individual power stations can be viewed by clicking on the details to see a breakdown of the instructions.

2.19 Operations Centre - Accounting Management (Value-added Services)



Module (in software)	Functional Description
Accounting statistics	1. Total statistical accounting by month 2. Statistics are performed according to the initiation method and confirmation status of the accounting order.
Earnings statistics	1. Cumulative Amounts Recognised: The sum of all receivables with a recognition status of "Recognised" in the historical accounts. 2. Recognised/unrecognised for the month: The amount of the purchase order initiated in the month is summarised according to the status of the purchase order (recognised and unrecognised).
Earnings statistics	1. Accounts receivable per month for the last 12 months (excluding the current month)



Module (in software)	Functional Description
Enquiry area	1. Site name, rule name: fuzzy query 2. Accounting time: select the date range, defaulting to the last 30 days (including today's date) as the time of initiating the accounting. 3. Meter reading results\revenue calculation results: default all, success, failure, drop-down radio selection 4. Confirmation Status: Default All, Confirmed, Not Confirmed, Dropdown Radio Selection
Manual accounting	1. Manual initiation of accounting 2. Selection of the meter reading cycle (the meter reading cycles of the sites cannot overlap)
Listings	1. Display of information on accounting records 2. Meter reading result: Success or failure, failure means that the meter collection abnormality can't obtain the meter reading tally normally. 3. Calculation result of earnings: Success or Failure, Failure is an abnormality in earnings calculation and can be classified into two cases: One is failure of meter reading. There is no electricity data; the second meter reading was successful, the tariff is not configured for the month corresponding to the meter reading period in the tariff template, and no tariff information is available 4. Amount receivable ($): Total revenue if electricity price is discounted; investor's revenue if split ratio is adopted 5. Sorting: by time of initiation of accounting in descending order, with the most recent initiation taking precedence

Push button	1. (b) Recalculation: meter readings are re-examined and tariffs are re-collected for the calculation of revenues. 2. Details: View accounting sheet details 3. Confirmation: Meter reading data cannot be corrected after the confirmation of the accounting order. 4. Deletion: Accounting records with "Confirmed" status cannot be deleted; other statuses can be deleted. 5. Export: Format: Excel, File Name: Accounting Number.xlsx

Module (in software)	Functional Description
Enquiry area	1. Accounting rules, tariff templates: fuzzy queries 2. Revenue model: default all, single choice (discounted tariff, contrast ratio) 3. Initiation type: default all, radio (automatic, manual) Confirmation status: default all, confirmed, unconfirmed
Additional accounting rules	1. All fields are mandatory, and when completed, create a rule record, with the default rule being "disabled". 

Listings	1. Display of accounting rule records 2. Sort: by rule number, from largest to smallest, with priority given to the most recent rule.
Push button	1. Edit: Click to edit accounting rules 2. Details: View accounting rule details 3. Deletion: two confirmations are required to delete a rule 4. (b) Contributing to the growth/expiration of a rule: A rule with "go into effect" status is subject to accounting initiation and cannot be deleted.

Module (in software)	Functional Description
Enquiry area	1. Tariff template name: fuzzy query
Add tariff template	1. Template Name: Input File
Listings	1. Tariff template displayed, last updated month (latest month with tariff) 2. Sort: Sort by template number from large to small, descending.
Push button	1. Tariff configuration: enter the two-level screen to configure the monthly tariff in the template. 2. Edit: Click to edit the tariff template name 3. Delete: Deletes tariff templates; tariff templates that have been used by accounting rules cannot be deleted.

3. The area behind a theatrical stage

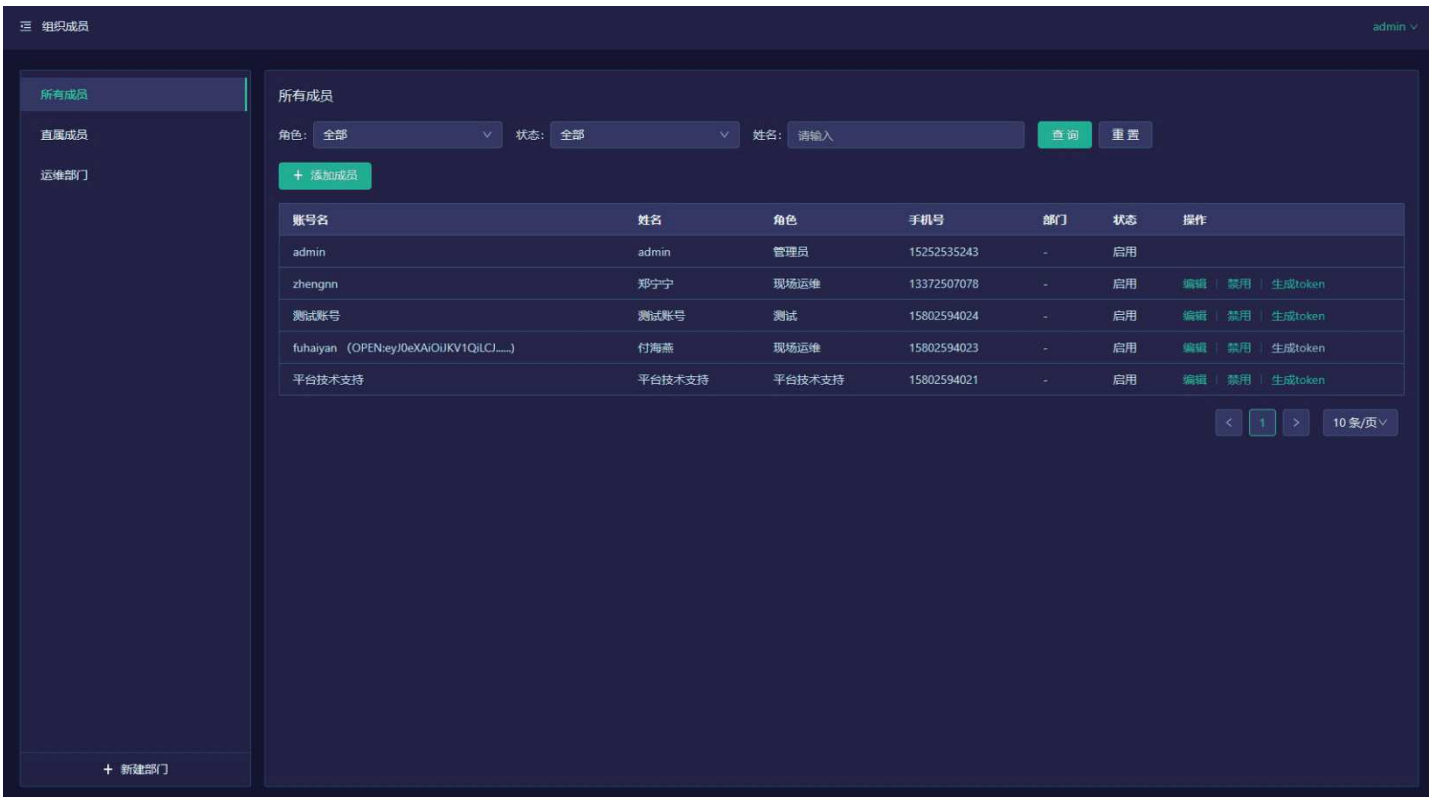
Click on "admin" in the upper right hand corner, then click on "Go to Back Office".

3.1 Management - Site Management

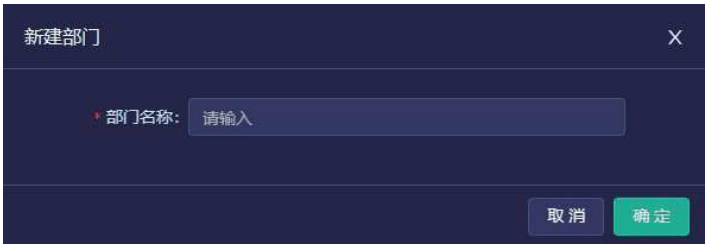
Module (in software)	Logos
Tab	• Affiliated Sites: Sites belonging to your company that are owned by your company can be added. Click ""Add a new site"" to go to the Single-site Monitor, fill in the site creation information, and return to this screen when you are finished. • Authorised Sites: Power stations owned by other companies and authorised to the Company.
Label management	• Ability to add, edit, view and delete site tags • Site labels make it easy to categorize sites for large numbers of sites and to assign data permissions to power stations.
Site tab	• Query area: fuzzy query for "site name"; radio selection for "status": all, show, hide, default all. • List: Display basic information fields for power stations • Operation Button "Manage": Quick access to the basic information of the station's single-site monitoring back-office. • Button "Hide/Display": Controls whether or not the site is visible in the foreground; hidden stations are not counted in the platform's statistics.

	• Action button "Site Label": Configure labels for the site; you can select up to 10 labels.
Authorised Sites tab	• Query area: fuzzy query for "site name"; radio selection for "status": all, show, hide, default all. • List: displays fields for basic information about the power station, authorised source company (shows the company to which the power station belongs) • Operation button "Manage": Quick access to the basic information screen of the station's single-site monitoring background, depending on whether or not "Modify" permission has been authorised; if "Modify" permission has not been authorised, the screen is unavailable. Edit • Button "Hide/Display": Controls whether or not the site is visible in the foreground; hidden stations are not counted in the platform's statistics. • Action button "Site Label": Configure labels for the site; you can select up to 10 labels.

3.2 Managing Awareness - Organisational Members

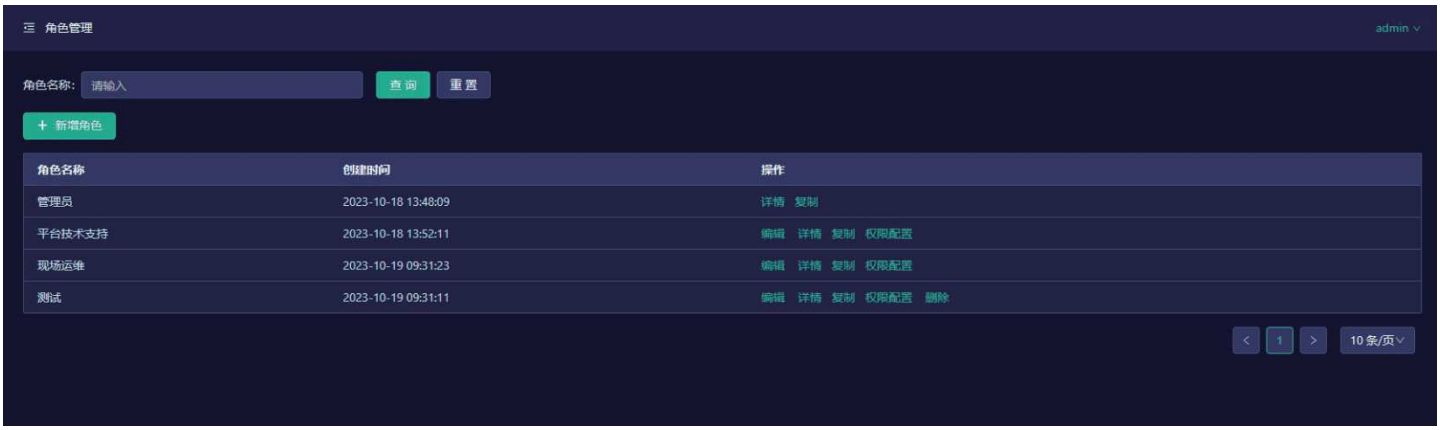


Module (in software)	Logos

Departmental	• The system defaults all members and the default department, which cannot be modified or deleted; the department of the default department is empty. • Other departments can be created by clicking "New Department" at the bottom of the page, and can be renamed or deleted; if an account exists in the department, it cannot be deleted.  • The administrator, admin, is the default department, and is the first one on the list by default.
Enquiry area	• (****): Default All, drop-down radio selection • Status: Default All, All, Enable, Disable radio selection • Name: Fuzzy Search
Account List	• Select the department on the left to display a list of the corresponding member accounts within that department. • Fields: account name, first name, second name, phone number, department, status
Action button "Add member"	• Fill in the basic information of the member's account. All fields are required except for the name of the department. • Site assignment method: province and city, site label, external company, manual selection, radio selection (default province and city) • Provinces and municipalities: single drop-down selection, with all the power station authority of the selected area • Site tabs: Multi-select drop-down selection with full power station access for selected tabs • External Company: Multiple choice drop-down selection, with all power station permissions authorised to the Company by the selected external partner company (authorised sites only). • Manual Selection: Multi-select drop-down selection, default all, with access to all stations selected

Operation button "Edit"	• Click "Edit" to jump to the "Edit Usage" screen, enter the correct format of the information, and click "OK" to edit the account successfully.  • After clicking "Reset Password", the password for that user will be reset to "Aa123456". Click "OK" and the reset will be successful. "The message "Reset Successful! Tip • Click "Disable" to change the freeze status to "Disable" and the "Disable Successful" pop-up box will appear. The "Ban" pop-up box appears. Click "Start" to change the freeze status to "Start" and "Start Successful" appears. A pop-up box appears, and "Start" is displayed as "Prohibited". • You cannot log in to the system after your account has been banned. When you log in, you will be reminded that your account has been banned, please contact an administrator.
Click on the "Create a Token" button.	• This is a value-added service • For users with open API requirements, tokens can be created for member accounts; the token is created once, spliced to the account name, and the full token can be viewed by hovering over it.  • Cloud docking can be performed using tokens. • If the company's Open API function is withdrawn by LightSky, the buttons in this column will not be displayed, the token that has been created will be hidden, and you will no longer be able to access the LightSky API via the token.

3.3 Management Centre - Kokusai Management



Module (in software)	Logos
Enquiry area	• Fuzzy queries.
Action button "Add"	• Click the "Add" button and enter the new name in the pop-up window.
List of names	• The system has three types of obstacles built in by default. • Administrator: built-in template, menu permissions controlled by方舟; cannot be edited and deleted • Platform technical support: for built-in templates, editable menu permissions, non-deletable, lightweight officials can access our platform through this account • On-site O&M: built-in templates with editable menu permissions that cannot be deleted (only the app can be operated in this orientation). • Other: Privileges are configured as sub-sets of the administrator's privileges, and menu privileges other than the administrator's privileges are not displayed; copying and modification are possible.
Operation button "Edit"	• Editing to change kokinetic names
Operation button "Details"	• View the name of the kok and the configured menu permissions.
Operation button "Copy"	• Click on the pop-up window to fill in the name to copy the menu permissions for that color.
Action button "Configuration of rights"	• Click on "Configure permissions" and go to the second level screen to assign menu permissions of that color.
Operation button "Delete"	• The colors being used by member accounts cannot be deleted.

3.4 Management of Clubs - External Companies

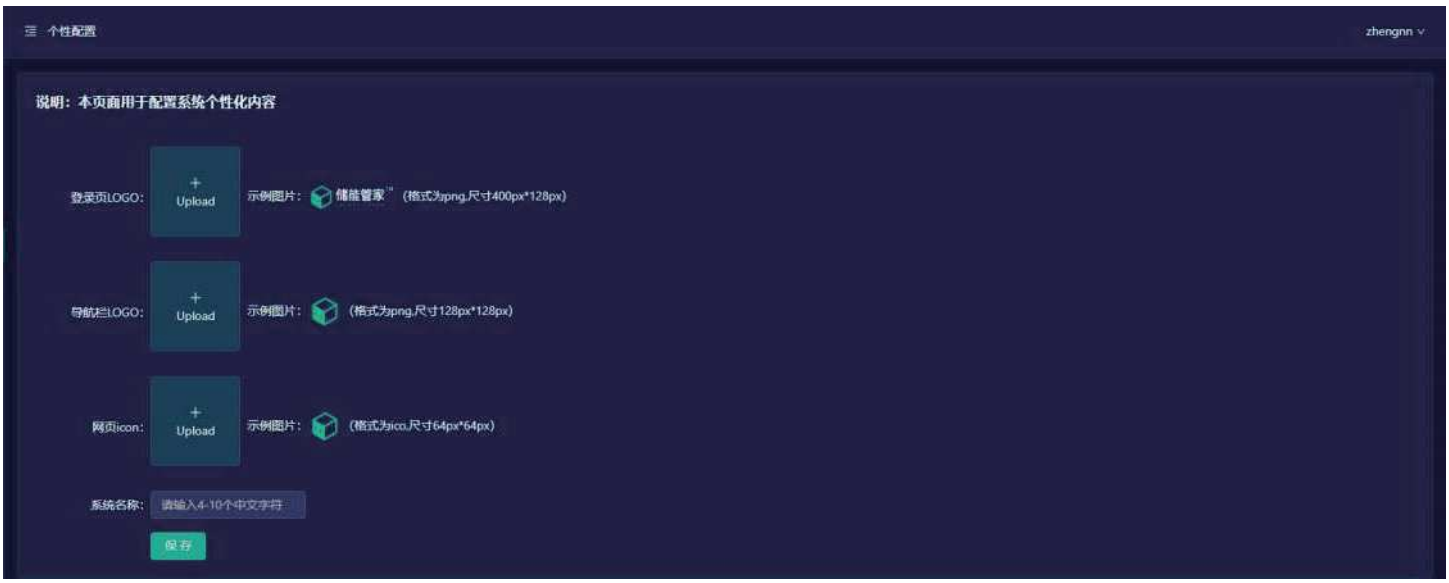
Module (in software)	Logos
Define	• External companies are companies that are partners of our company. The integrator can create a company for the partner company on the cloud platform, so that the partner company can have a separate cloud platform system and can perform mutual power plant authorisation, which helps the integrator to monitor the real-time operation status of the power plant equipment, and makes it easier for the O&M provider to perform multi-client power plant operation and maintenance on the platform. • This feature is an additional charge, you need to contact the light 舟 open to create a company permissions
Enquiry area	• Company name: Fuzzy Search
Action button "Associate with an external company""	• Click on the pop-up window and enter the social security code of the partner company to be associated. • If the company you want to associate with is already using the Lightweight System, display the name of the corresponding company and click OK to establish a two-way association. • If the company you want to associate with is not using the Lightweight System, you can click "Next" to create a partner company if you have the permission to create a company; if you do not have the permission to create a company, you cannot associate with the company.
Listings	• Fields: Company name, social security code, date of affiliation/creation, contact person, contact phone number
Operation button "Details"	• View basic information about this partner company

Operation button "Allocation of rights"	• Click on the display pop-up window to select the power stations to be licensed to this partner company (multiple choice drop-down)  • Power station rights: view (power station data can be read), modify (power station information can be modified), control (power station equipment, policy control can be controlled), please be careful to fill in the authorisation to go out of the power station rights, the default view rights
Operation button "Unlink"	• If either party cancels the relationship, the mutually authorised power station privileges will be cancelled.

3.5 Centre for Consciousness Management - Date Management

	Logos
Consult (a document etc)	• Default data is the last 7 days. Click to change the date range.
Date	• Sort by operation time from closest to furthest • Display time/content of operation/account name

3.6 Manage Awareness - Personalised Configuration



	Logos
Login Logo	• Click on a photo to add it locally. • Format: png, Size: 128px*400px • Used in the login screen and the navigation bar in normal system mode.
Navigation bar logo	• Click on a photo to add it locally. • Format: png, Size: 128px*128px • Use the navigation bar in system shrink mode.
Grid Icon	• Click on a photo to add it locally. • Format ico, size 64px*64px • For grid icons
System name	• Insert 4-10 Chinese characters. • Used for data screen headers and grid system names
Pop-up window	• Error pop-ups for small and large errors in the format of photographs • Error pop-up appears for textbook errors • Click "Save" when all the formatting is correct, and the Save Success pop-up window will appear. The screen is updated in real time with a custom logo and system name.
The rest	• Unoperated module defaults to the original logo and system name of Energy Storage Manager.

3.7 Customer Care - Customer Number Management

	Logos
Enquiry area	• Supports fuzzy search by customer abbreviation, user ID, and user category.
New Hakone numbers added	• Fields marked with "*" are required, and the user ID is globally unique. • Multiple power stations can be associated with a single user ID, and only power stations within a company can be connected to the same user ID. A Guest Selection
Listings	• Display customer's abbreviation, user ID, user category, and number of associated sites. • Customer information can be edited, viewed, and deleted. • The default is 10, sorted in descending order by the time the customer was added. • This guest information shall be kept on file as energy storage plant information and shall be included in the bill of accounts. use