ADVANTECH
WISE-PaaS
AIoT Solutions & Marketplace

Advantech iFactory/EHS

Smart Factory Energy and Environmental Management solution

User Manual

V2.0.0

Version History

Date	Version	Author	Reviewer	Description
2021-10-13	1.0.0			First edition
2021-11-05	2.0.0			RTM software decouple

Contents

1. Design Background

In today's challenging economic climate, most manufacturers are seeking ways to save cost. Best-in-class manufacturers are already road mapping strategies to implement energy management in the factory to decrease energy consumption.

iFactory EHS integrates hardware and software within industrial applications where typically a 7-10% energy saving can be achieved in facilities, compared to where EHS is not used. Based on real-time data obtained from smart meters, EH allows users to monitor energy consumption information, accurately evaluate energy costs, and optimize energy efficiency, aiding business intelligence strategies for energy management.

2. Product Features

Dashboards present energy consumption of the plant for users to monitor consumption as well as the cumulative value of usage for any particular month. It also compares energy consumption over the same period for the past three years to monitor short-term changes or identify long-term trends.

Based on energy split formula set up in the back office, users can monitor the KPI performance by energy consumption type.

Dashboard indicates the alarm records categorized by energy type and alarm levels. Users can then identify the root cause based on analysis for the prevention of abnormal events.

3. Function Introduction

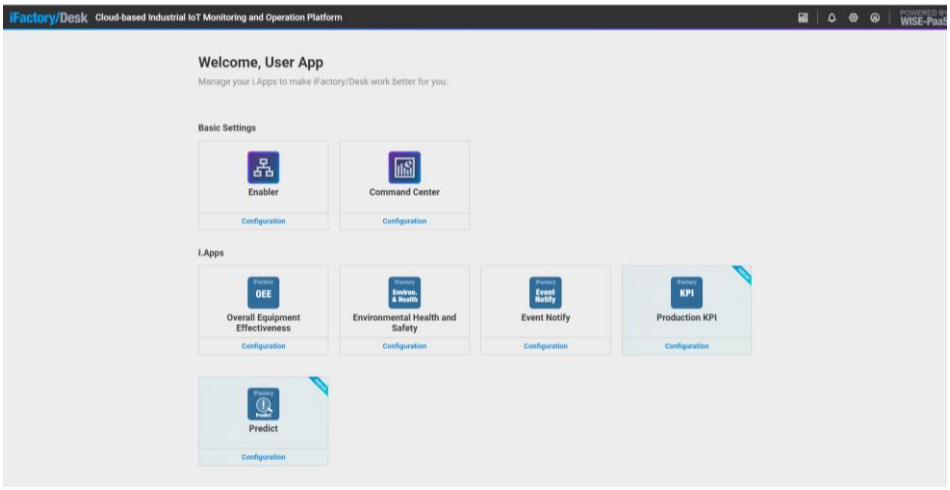
I. Introduction to Function Permissions

The function of iFactory/Desk depends on the purchased solution, and the content permissions provided will be different. Please refer to the table below for the background setting items supported by different product numbers.

Configuration		Function	IFS-51A-AG01	IFS-EGM-M77F01A IFS-EGM-M77F02A	IFS-RTM-UNO2271A
iFactory/Desk	Basic Setting	Enabler	v	v	v
		Command Center	v	v	Not Support
		Notification	v	Not Support	Not Support
		User Management	v	v	Not Support
	I.App	OEE	v	v	Not Support
		EHS	v	v	Not Support
		EAN	v	Not Support	Not Support

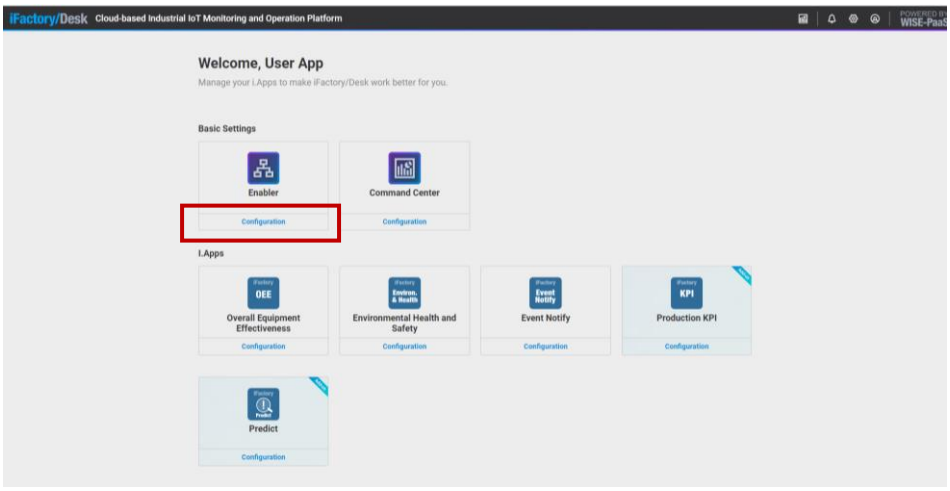
II. Enable iFactory/Desk

i. Successfully enter the home page of the iFactory/Desk management platform.

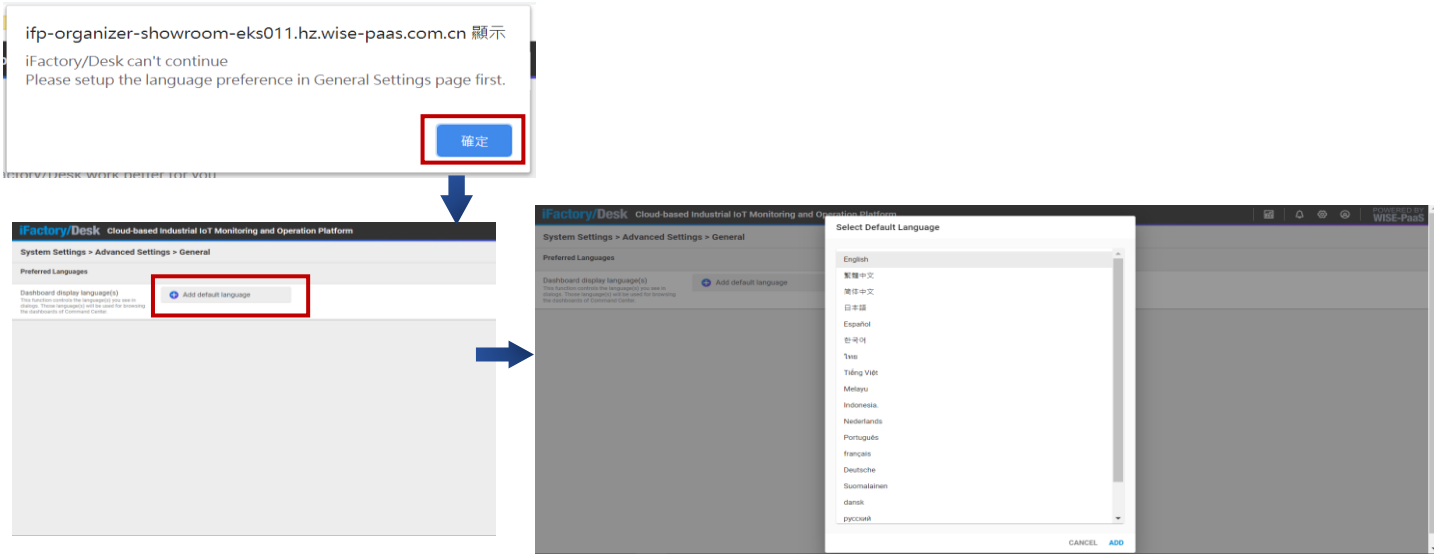


ii. iFactory/Desk Initialize settings

Step1：Enter iFactory/Desk management platform and click “Enabler”.



Step2：If iFactory/Desk can’t continue Please setup the language preference in General Setting page first, Click『Confirm/确定』switch to “Preferred Languages” page and

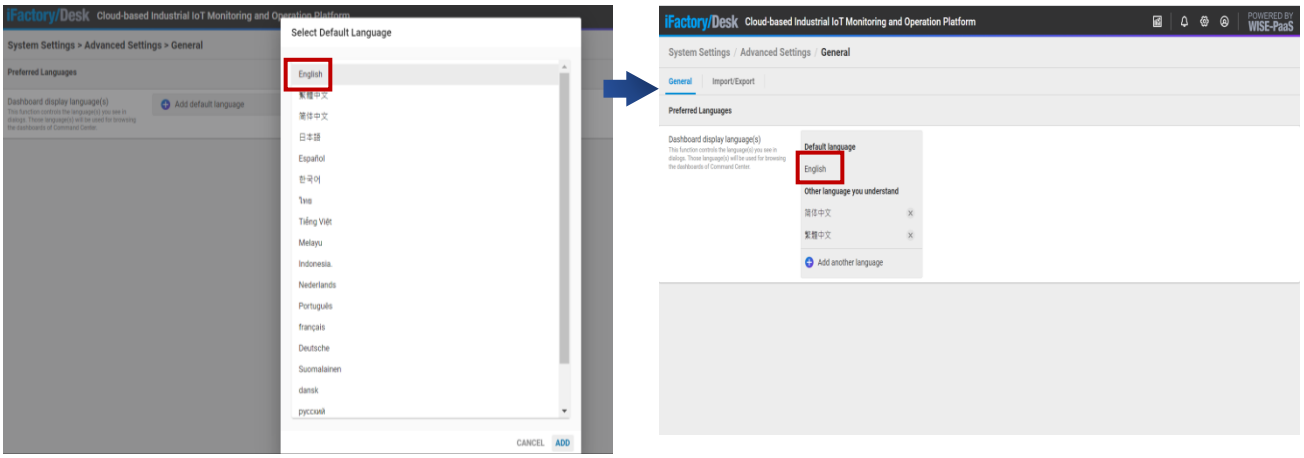


click『Add default language』button to add new language setting.

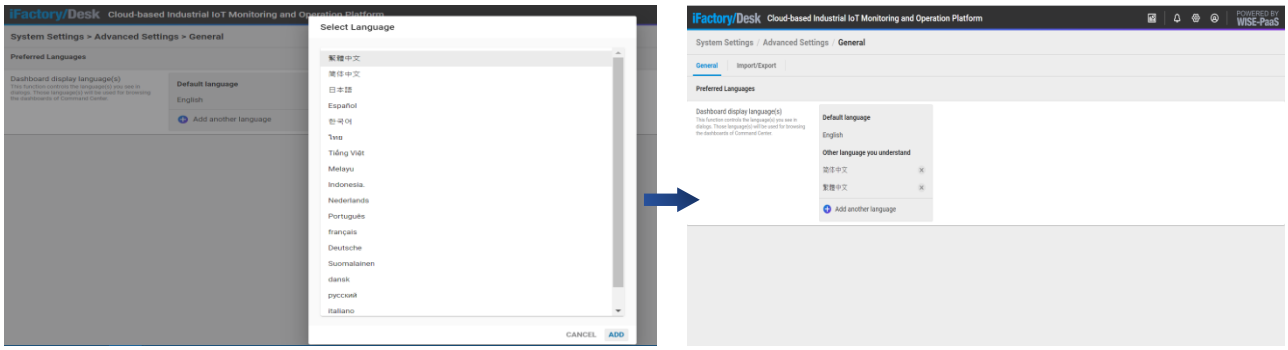
Step3：Select default language is as follow：First Click『English』and then click『ADD』button，after finish it will see “Default language” display on the “Preferred Languages” page.

Note: The purpose of the multi-language setting here is to provide the Dashboard to display the content of the multi-language system, not the system interface language. The current interface language only provides default English.

Step 4：To add another language is as follow：Click『Add another language』and then



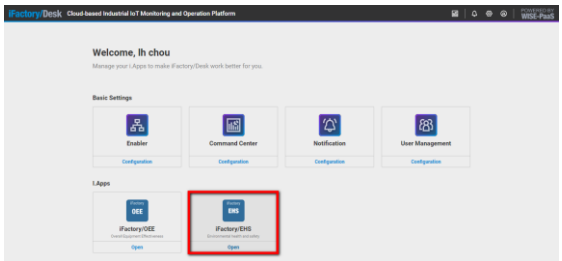
click『ADD』button, “Other language you understand” will change on the ”Preferred Languages” page.



Step 5：Click Enabler Configuration button, you can manage your group/device/parameters in this page.

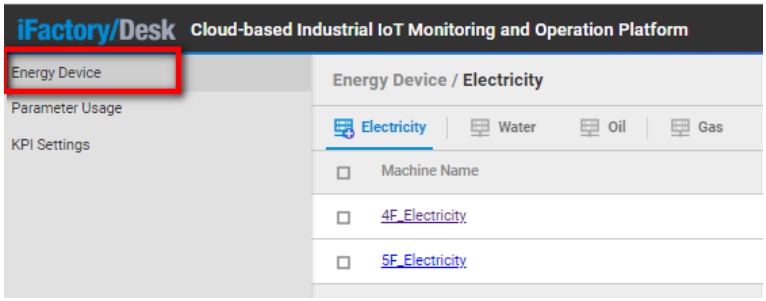
III. iFactory/EHS

Click『iFactory/EHS』to set up “Energy Device”, “Parameter Usage”, “KPI Setting” related data is taken from Group/Machine/Parameter which is setup in iFactory/Enabler.

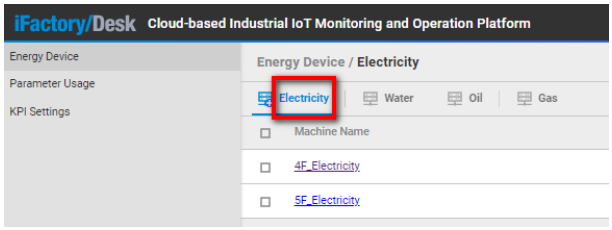


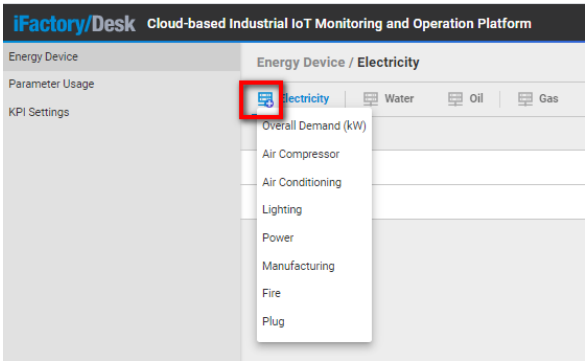
i. Energy Device

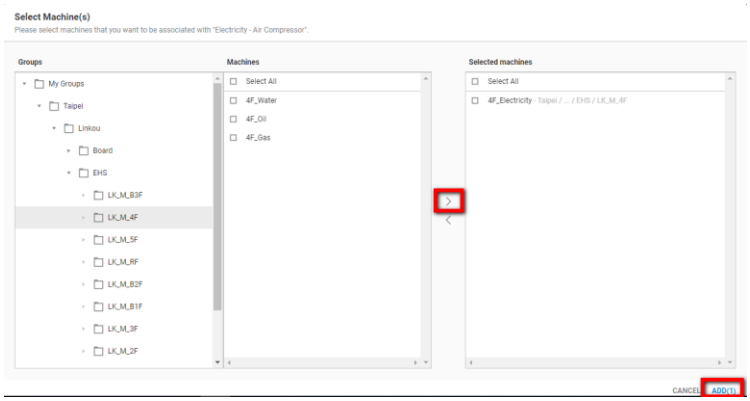
Energy Device: Click『Energy Device』Set the energy consumption type and sub-items for different energy consumption devices (Machine), as a distinction between different energy consumption types, divided into four categories: Electricity, Water, Oil, and Gas.



1) Electricity instruction: Add the machine that needs to be calculated, which should be an electric meter. Operation example: Click "Electricity" on the right and then click the button , Pull down the menu to select the attribution of electricity consumption, and select the machine, click to select or click to remove, and then click『ADD』button to add the machine on the right to this sub-item。
Click the set machine, and then press DELETE to delete it.



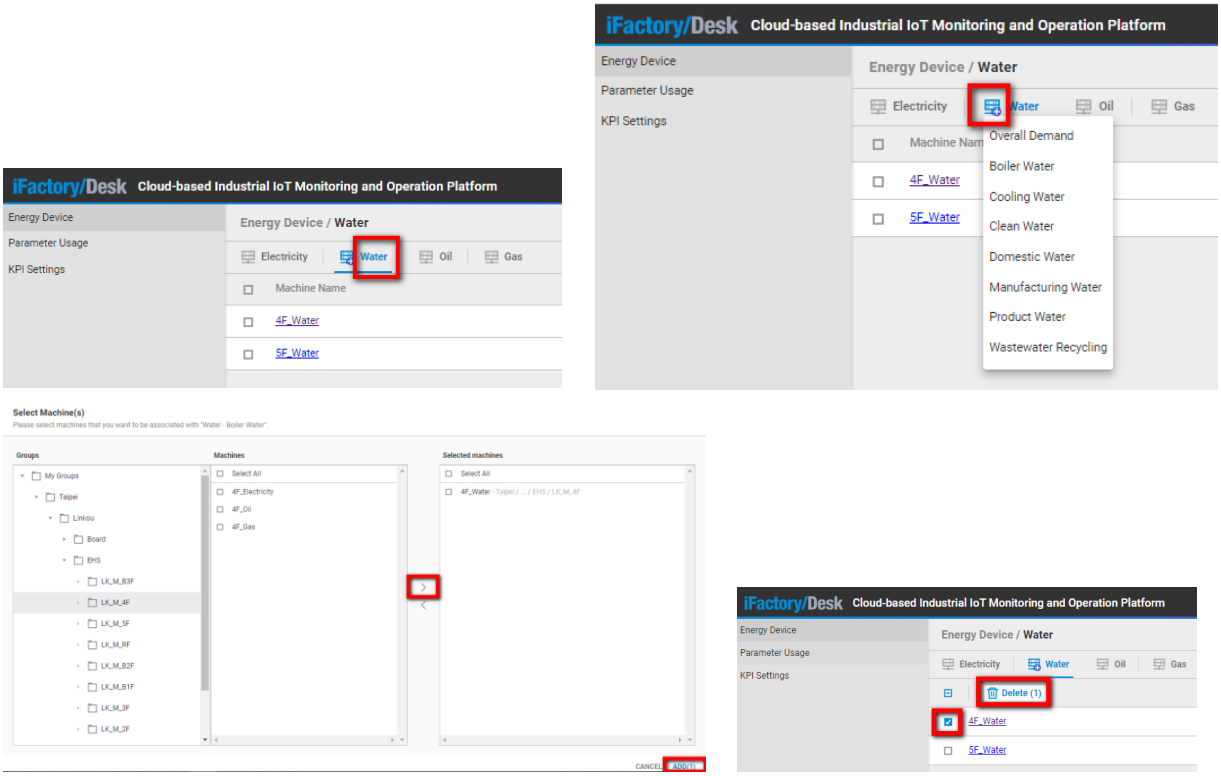




2) Water instruction: Add the machine for the water that needs to be calculated. It should be a water meter.

Operation example: Click "Water" on the right and then click the button , Pull down the menu to select the attribution of water consumption, and select the machine, click to select or click to remove, and then click『ADD』button to add the machine on the right to this sub-item。

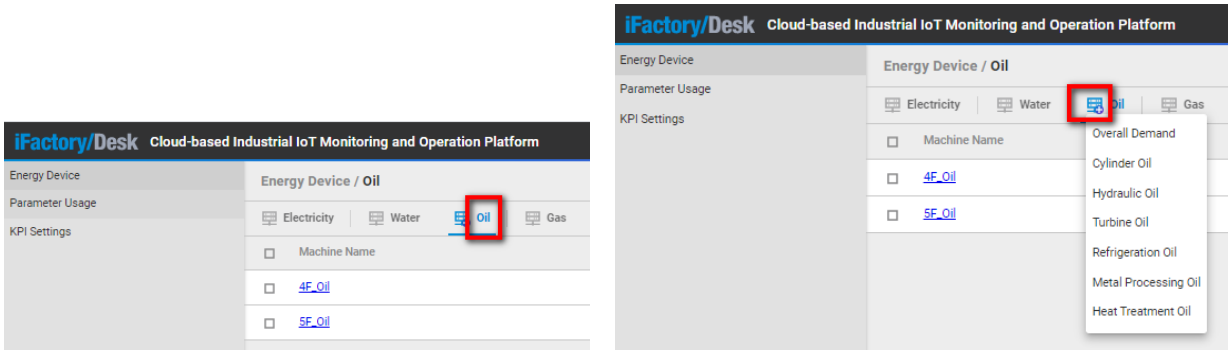
Click the set machine, and then press DELETE to delete it.

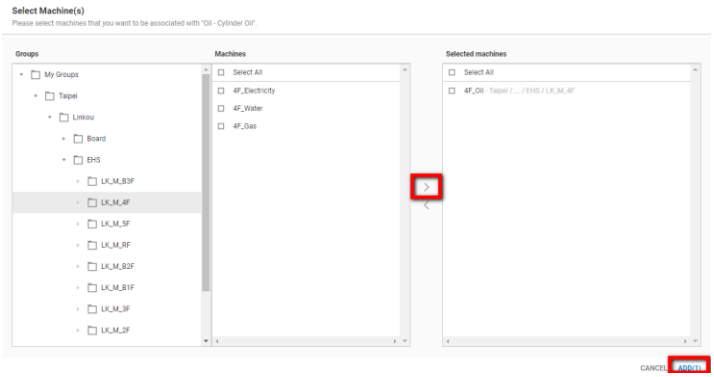


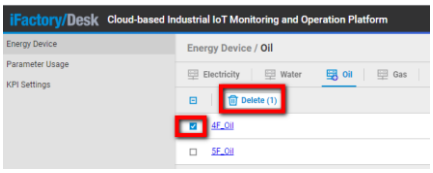
3) Oil instruction: Add the machine for the oil that needs to be calculated. It should be an oil meter.

Operation example: Click "Oil" on the right and then click the button. Pull down the menu to select the attribution of oil consumption, and select the machine, click to select or click to remove, and then click『ADD』button to add the machine on the right to this sub-item。

Click the set machine, and then press DELETE to delete it.



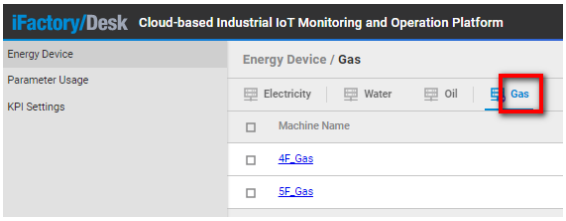


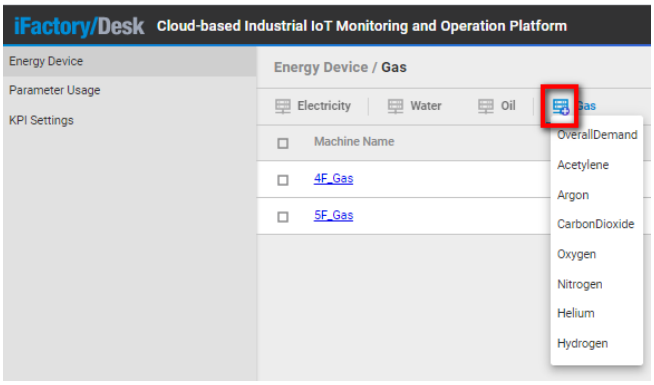


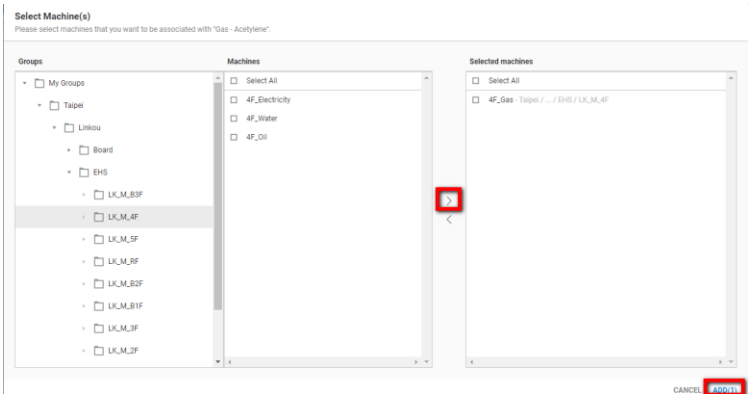
4) Gas instruction: Add the machine for the gas that needs to be calculated. It should be an gas meter.

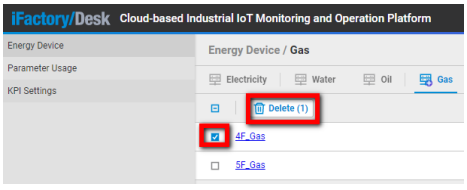
   Operation example: Click "Gas" on the right and then click the button  , Pull down the menu to select the attribution of gas consumption, and select the machine, click  to select or click  to remove, and then click『ADD』button to add the machine on the right to this sub-item。

   Click the set machine, and then press DELETE to delete it.

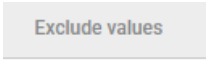






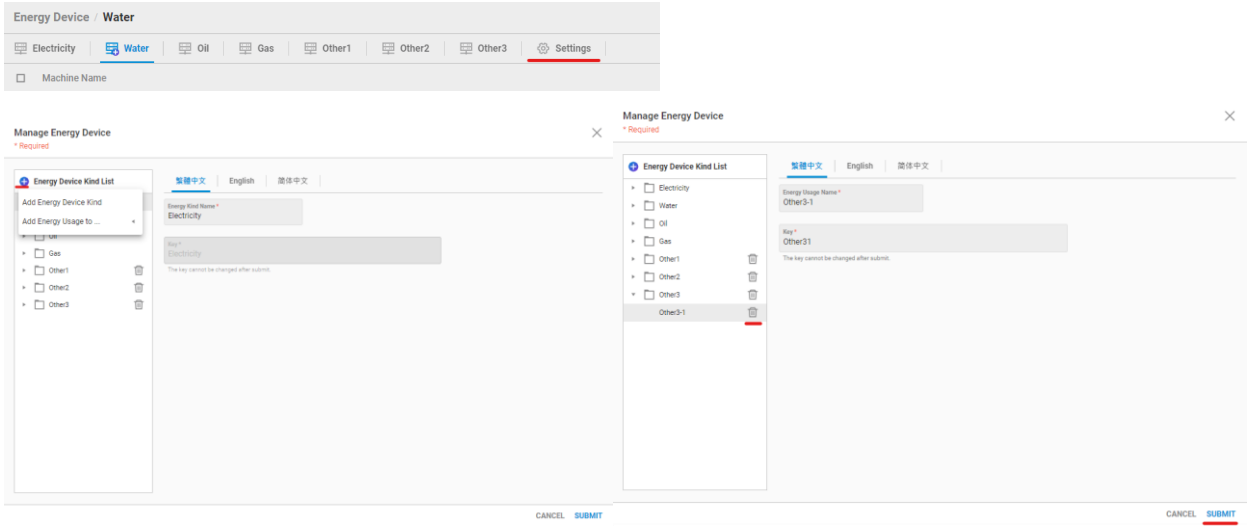


Set exclude values for a specific machine as “Exclude” to exclude this machine from EHS calculations.



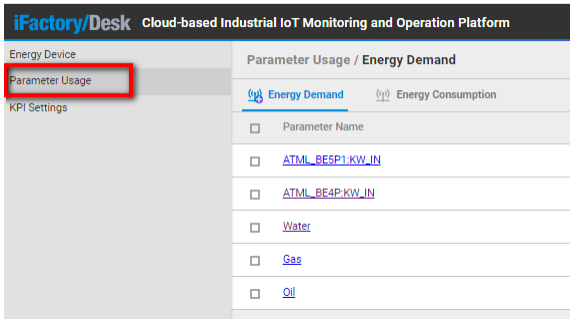
5) Settings instruction: In addition to the four categories of Electricity, Water, Oil, and Gas, the classification and sub-items can be customized.

Operation example: Click『Settings』 button on the right side, after enter Manage Energy Device page then click『ADD』button. Can click Add Energy Device Kind or Add Energy Usage to ….After finish the form can click『SUBMIT』button or delete button to update custom categories and sub-items.



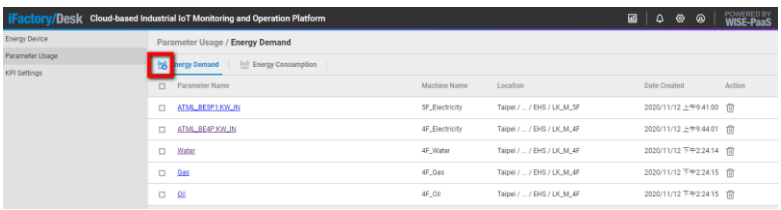
ii. Parameter Usage

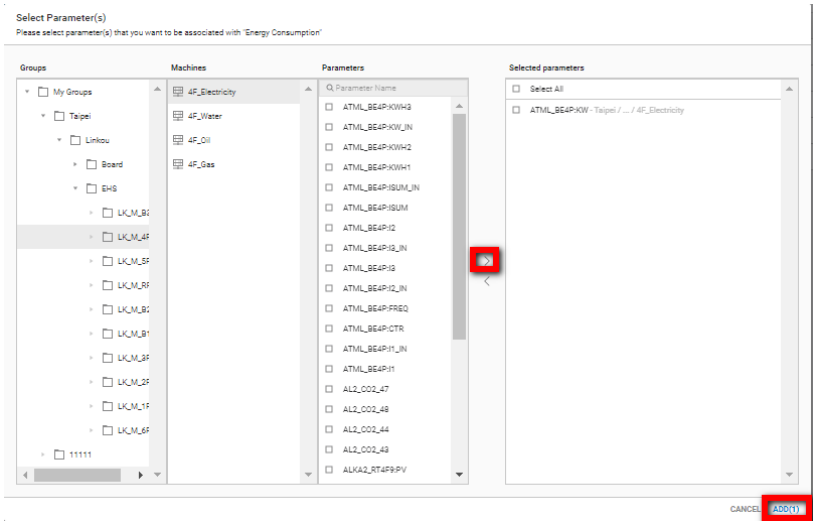
Parameter Usage: Click『Parameter Usage』Set the parameters of real-time energy demand and accumulated energy consumption for each devices to distinguish energy calculation methods.

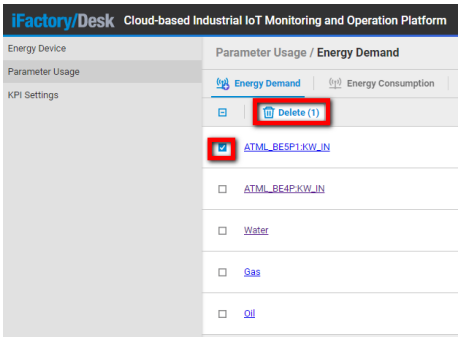


1) Energy Demand instruction: Add Parameter that needs to calculate the real-time energy demand.

Operation example: Click『Energy Demand』on the right side. Then click  , A pop-up window, select the real-time demand Parameter of the Machine (energy consumption device). Click  to select or click  to remove. After confirming, click the "ADD" button to add the parameters in the right table to the real-time energy demand calculation.

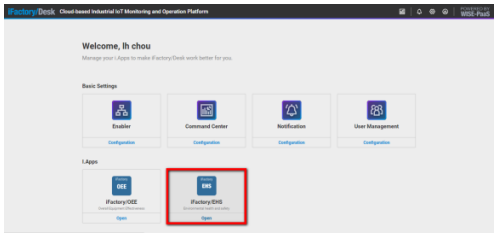


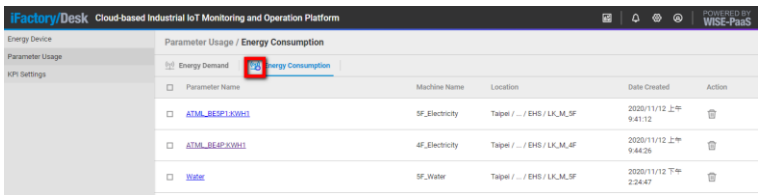


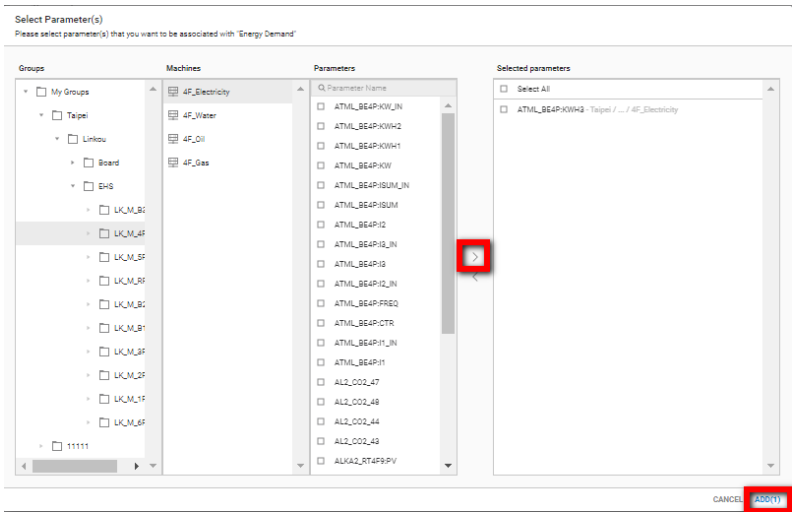


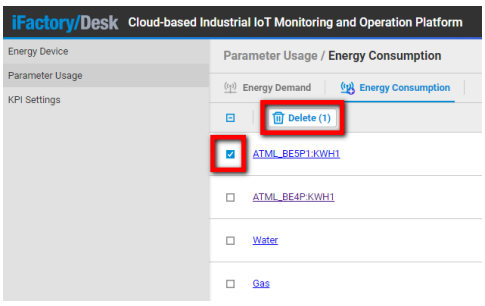
2) Energy Consumption instruction：Add the Parameter that needs to calculate the cumulative energy consumption.

Operation example: Click『Energy Consumption』on the right side. Then click , A pop-up window, select the cumulative energy consumption parameter of the Machine (energy consumption device). Click to select or click to remove. After confirming, click the "ADD" button to add the parameters in the right table to the cumulative energy consumption calculation.



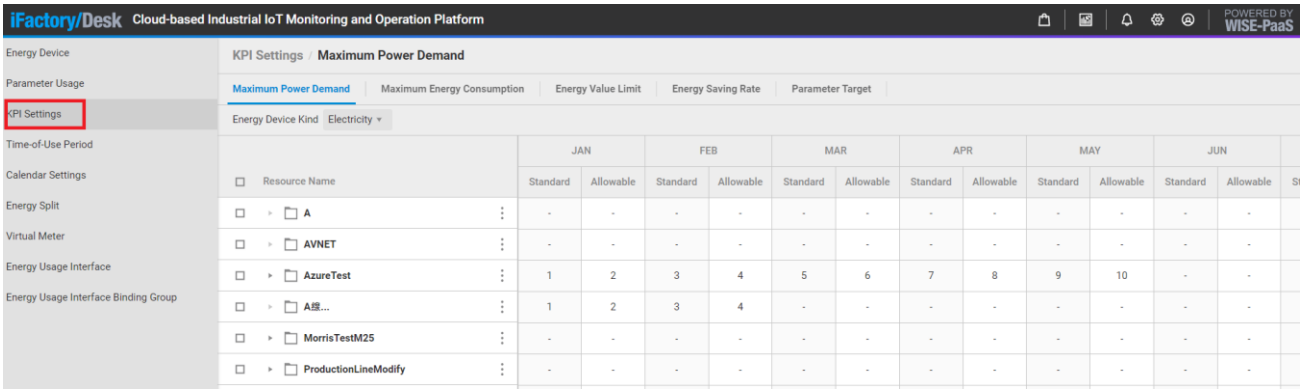






iii. KPI Settings

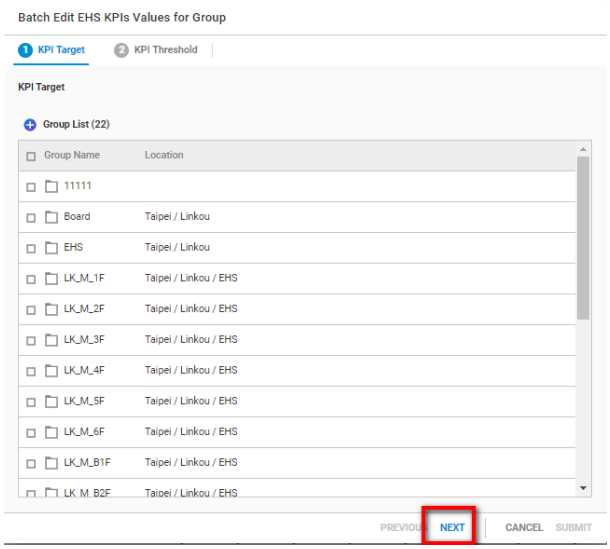
KPI Setting : Click "KPI Setting" to set KPI values of different categories within a specific time for each Group / Machine / Parameter, as the baseline for Notification and Dashboard display, including five KPIs: Maximum Power Demand, Maximum Energy Consumption , Energy Value Limit, Energy Saving Rate, Parameter Target.

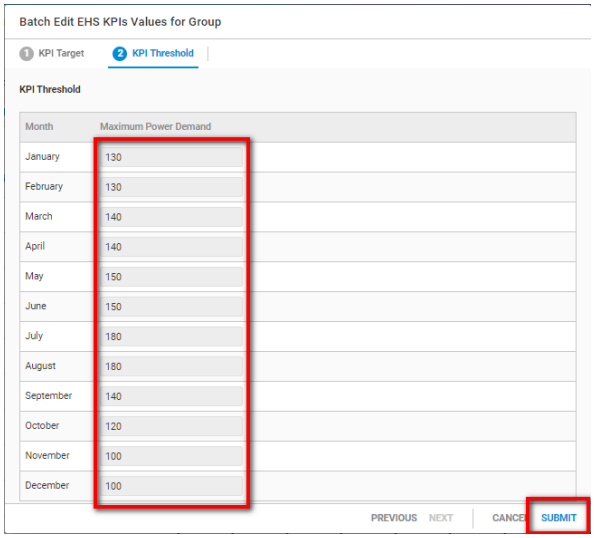


1) Maximum Power Demand instruction:

Operation example: Click on the "Maximum Power Demand" on the right, select "Electricity" from the drop-down menu, expand the group, and set the real-time demand high warning value for 12 months of the individual group within a year.

Click the small square in the upper left corner to select all, or check the specified group, click the Batch Edit button to set the consistency of the whole batch, and click Reset to clear the whole batch.

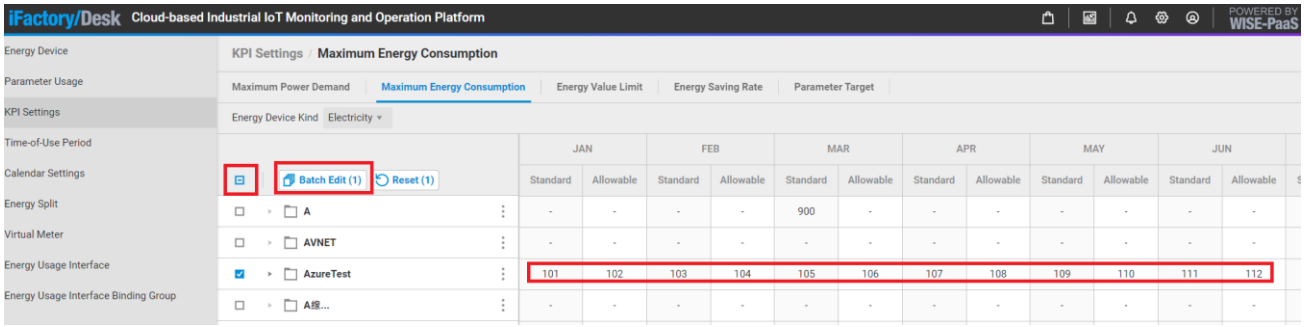




2) Maximum Energy Consumption instruction:

Operation example: Click on the "Maximum Power Consumption" on the right, select "Electricity" from the drop-down menu, expand the group, and set the real-time demand high alert value for 12 months in a year for each group.

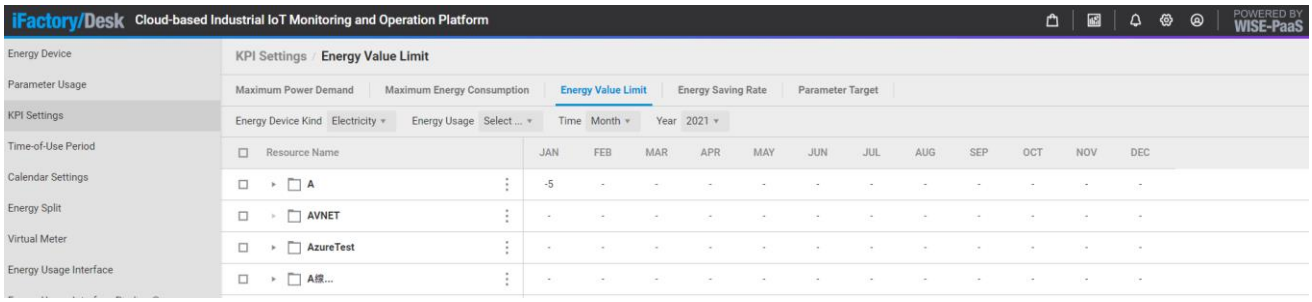
Click the small square in the upper left corner to select all, or check the specified group, click the Batch Edit button to set the consistency of the whole batch, and click Reset to clear the whole batch.



3) Energy Value Limit instruction:

Operation example: Click on the "Energy Value Limit" on the right to expand the Group and set the energy high target value for individual Group/Machine.

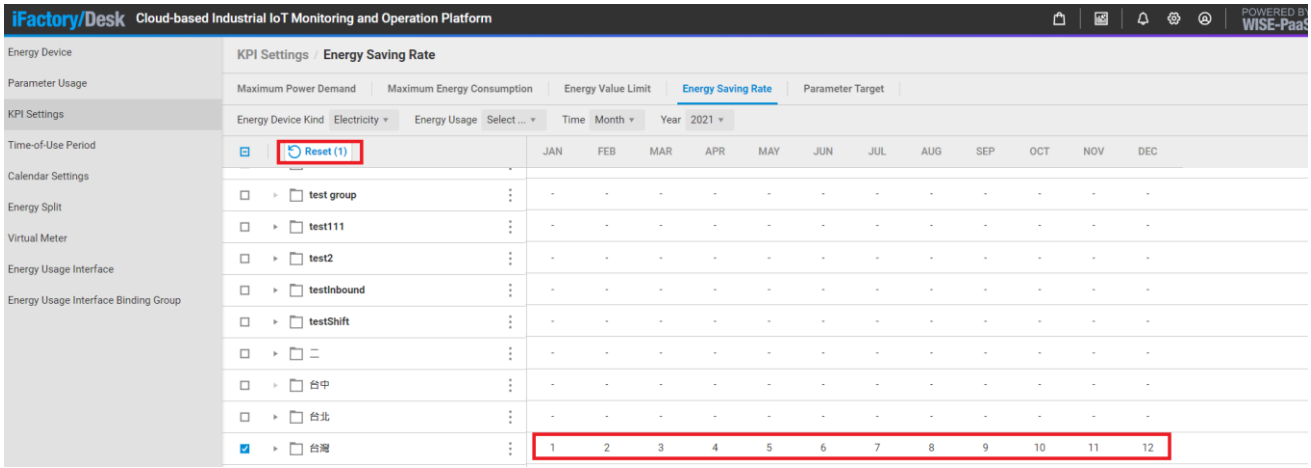
Click Reset to clear the whole batch.



4) Energy Saving Rate instrcution:

Operation example: Click on the "Energy Saving Rate" on the right to expand the Group and set the target value of individual Group/Machine energy saving rate.

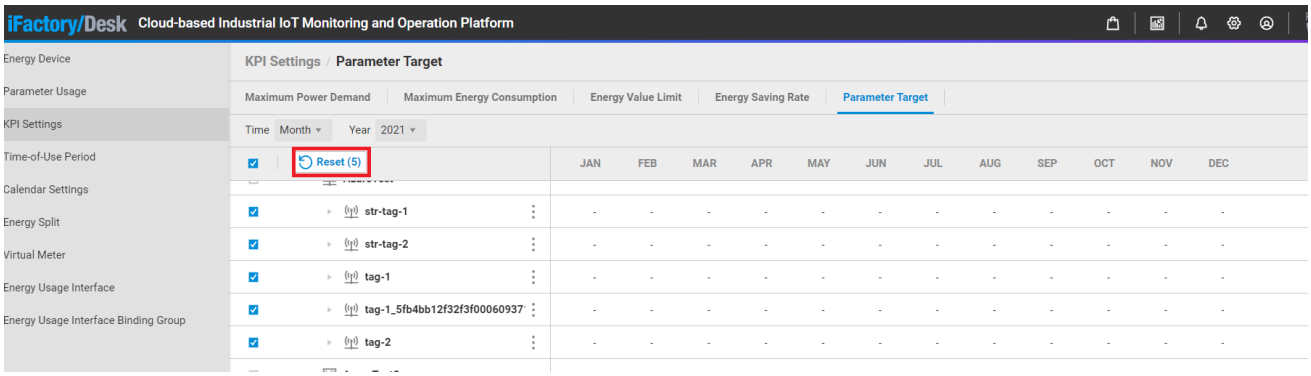
Click Reset to clear the whole batch.



5) Parameter Target instruction:

Operation example: Click on the "Parameter Target" on the right to expand the Parameter, and set the 12-month target value of individual Parameter within a year.

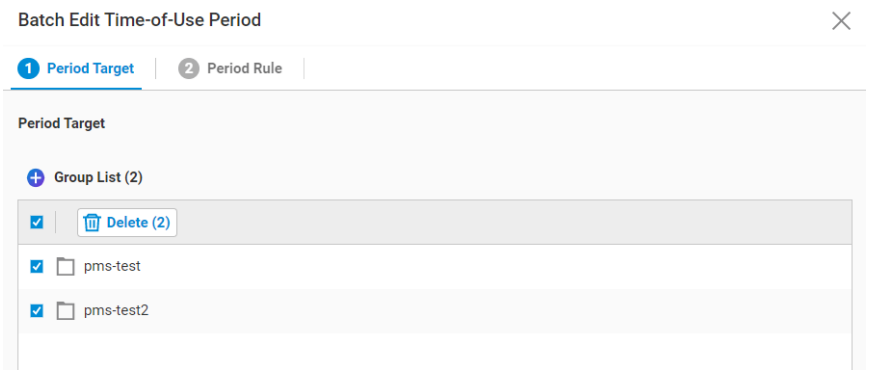
Click Reset to clear the whole batch.

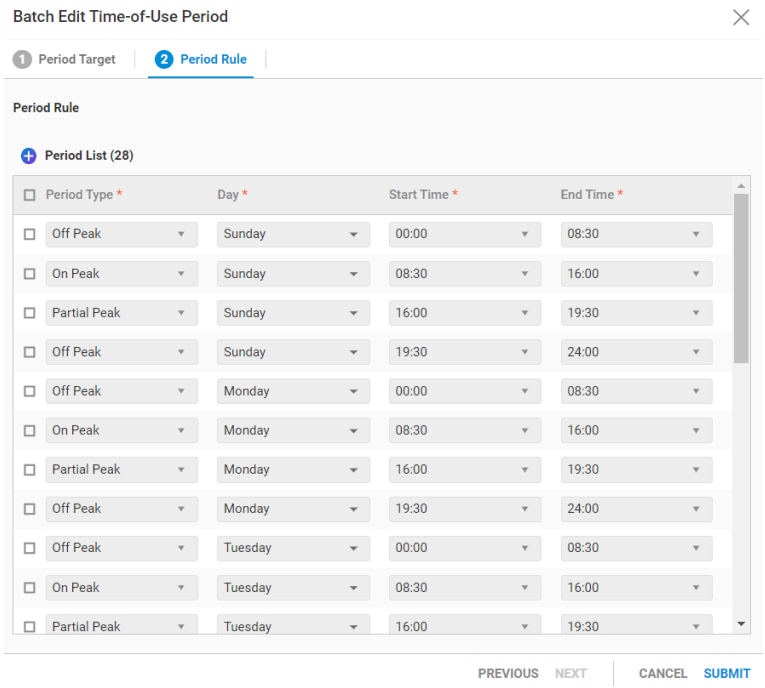


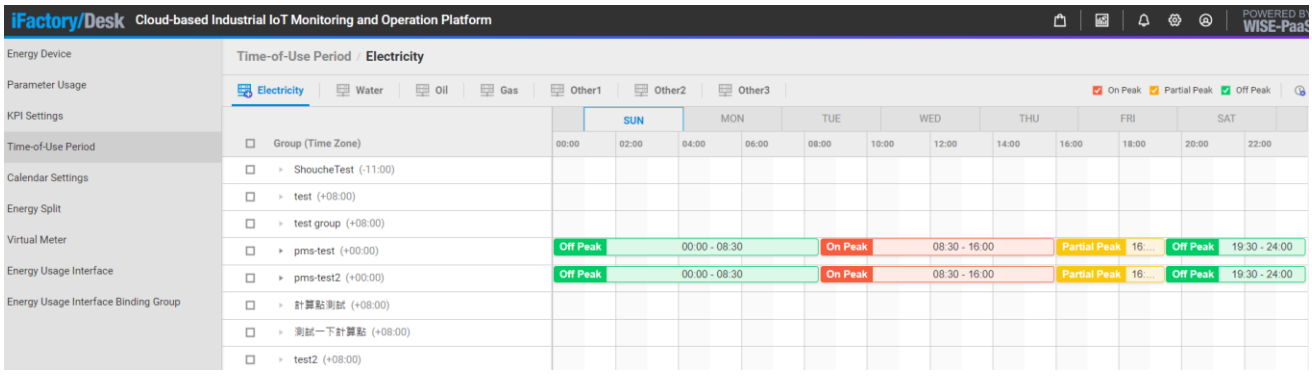
iv. Time-of-Use Period

To display the function of EHS off-peak information on the Dashboard.

Operation example: Add, with Group as the unit, set the Period Type, define the day, and define the off-peak at the start/end time of the hour.


Batch Edit Time-of-Use Period
1 Period Target
2 Period Rule
Period Target
Group List (2)
Delete (2)
pms-test
pms-test2

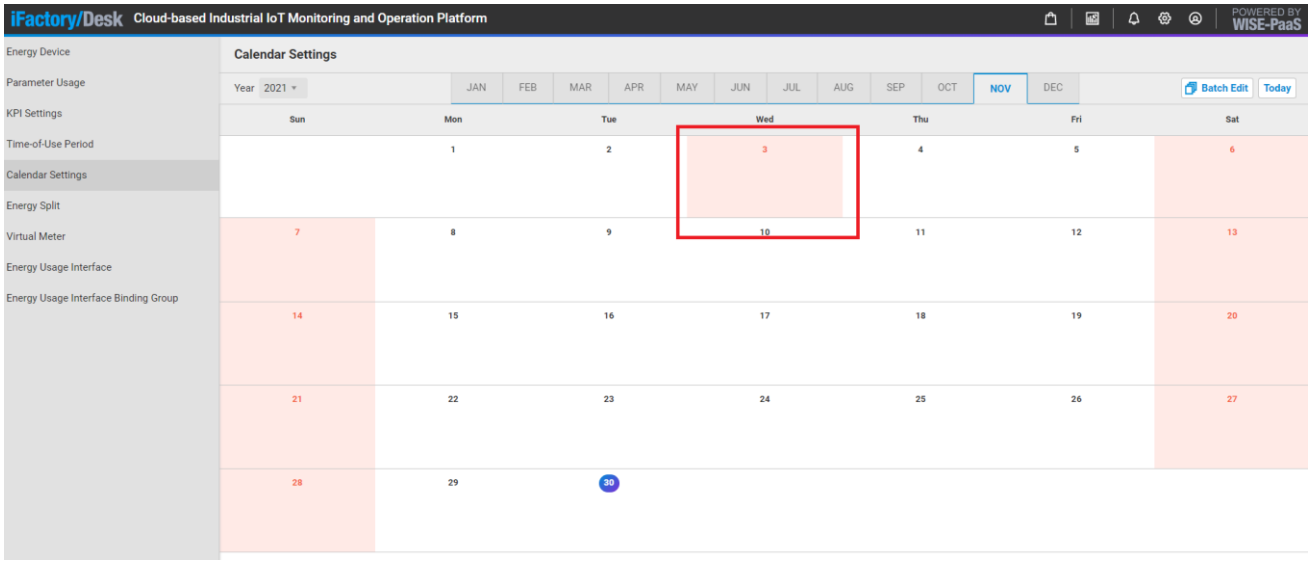

Batch Edit Time-of-Use Period
1 Period Target
2 Period Rule
Period Rule
Period List (28)
Period Type * | Day * | Start Time * | End Time *
Off Peak | Sunday | 00:00 | 08:30
On Peak | Sunday | 08:30 | 16:00
Partial Peak | Sunday | 16:00 | 19:30
Off Peak | Sunday | 19:30 | 24:00
Off Peak | Monday | 00:00 | 08:30
On Peak | Monday | 08:30 | 16:00
Partial Peak | Monday | 16:00 | 19:30
Off Peak | Monday | 19:30 | 24:00
Off Peak | Tuesday | 00:00 | 08:30
On Peak | Tuesday | 08:30 | 16:00
Partial Peak | Tuesday | 16:00 | 19:30
PREVIOUS
NEXT
CANCEL
SUBMIT


iFactory/Desk Cloud-based Industrial IoT Monitoring and Operation Platform
Energy Device
Parameter Usage
KPI Settings
Time-of-Use Period
Calendar Settings
Energy Split
Virtual Meter
Energy Usage Interface
Energy Usage Interface Binding Group
Time-of-Use Period / Electricity
Electricity
Water
Oil
Gas
Other1
Other2
Other3
On Peak
Partial Peak
Off Peak
SUN
MON
TUE
WED
THU
FRI
SAT
Group (Time Zone)
ShoucheTest (-11:00)
test (+08:00)
test group (+08:00)
pms-test (+00:00)
pms-test2 (+00:00)
計算點測試 (+08:00)
測試一下計算點 (+08:00)
test2 (+08:00)
Off Peak 00:00 - 08:30
On Peak 08:30 - 16:00
Partial Peak 16:...
Off Peak 19:30 - 24:00

v. Calendar Settings

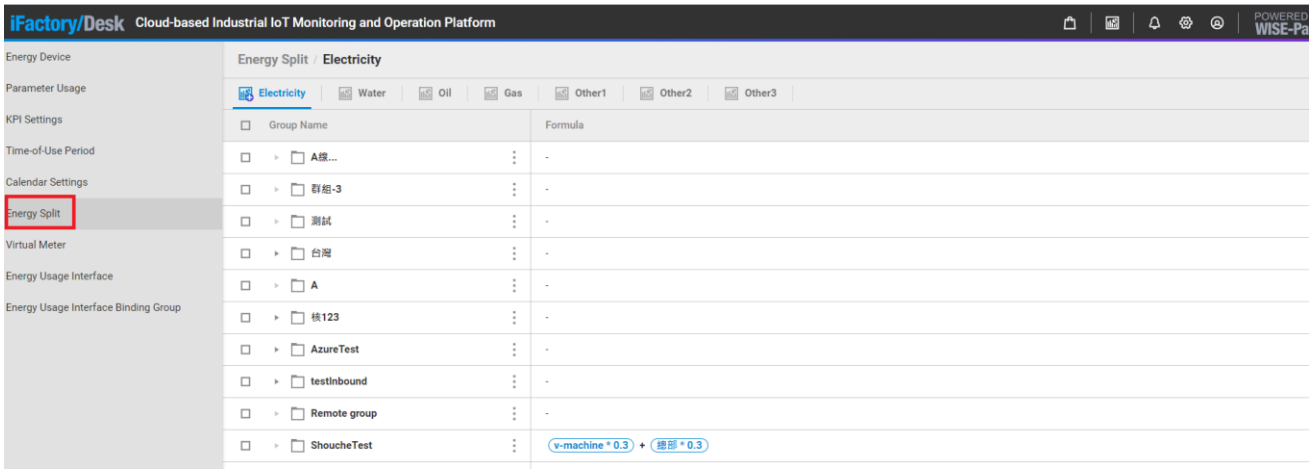
To distinguish whether it is a holiday or a non-holiday setting in KPI Settings.

Operation example: Click any date on Calendar to adjust holidays and non-holidays.

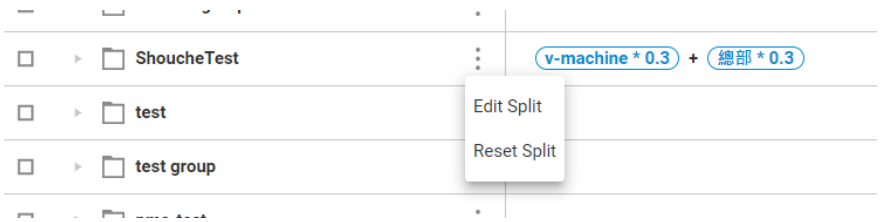


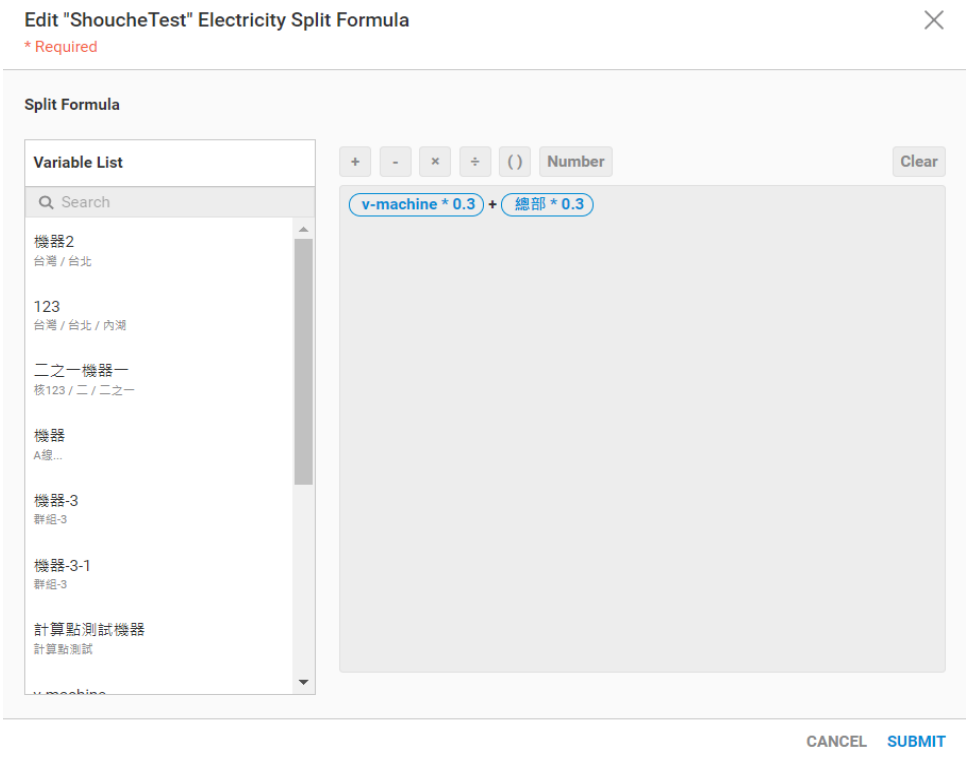
vi. Energy Split

Energy Split setting: Click "Energy Split" to set the energy consumption ratio of different devices (Machine) according to formulas for different Groups, and calculate their allocated energy consumption statistics.

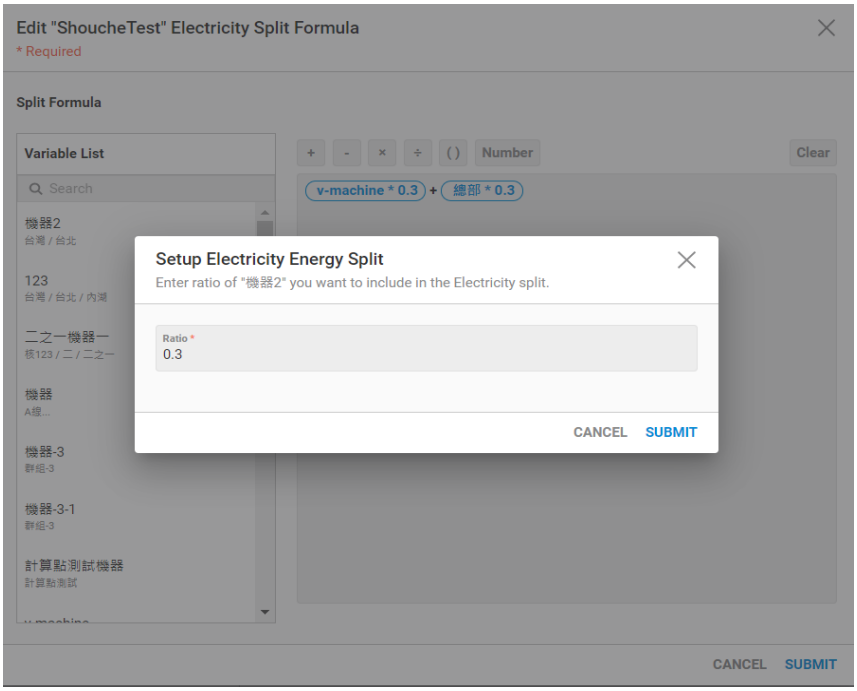


Operation example: Click the "Electricity" or other sub-tabs above, select any group, and press Edit Split.



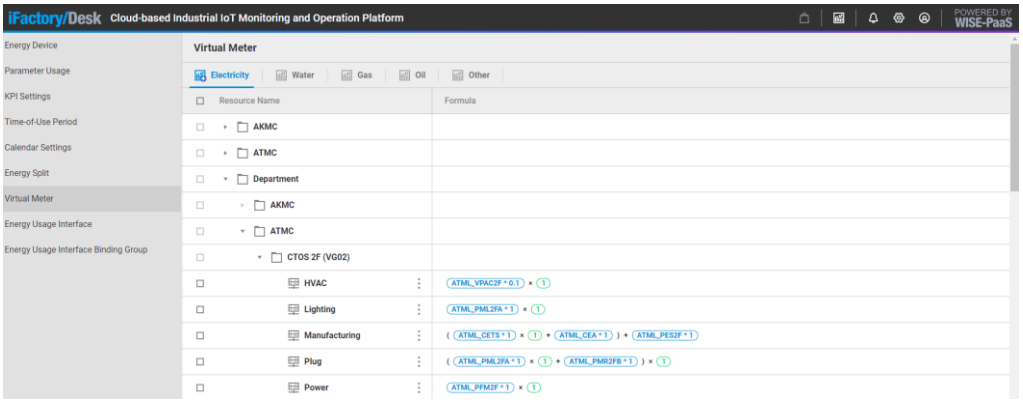


The left side of the formula setting page shows different devices (Machine) as the formula operands, and the upper side shows the addition, subtraction, multiplication, and division operators, and number settings. Click on a device to set the apportionment ratio (0~1), and press the SUBMIT button to finish editing.

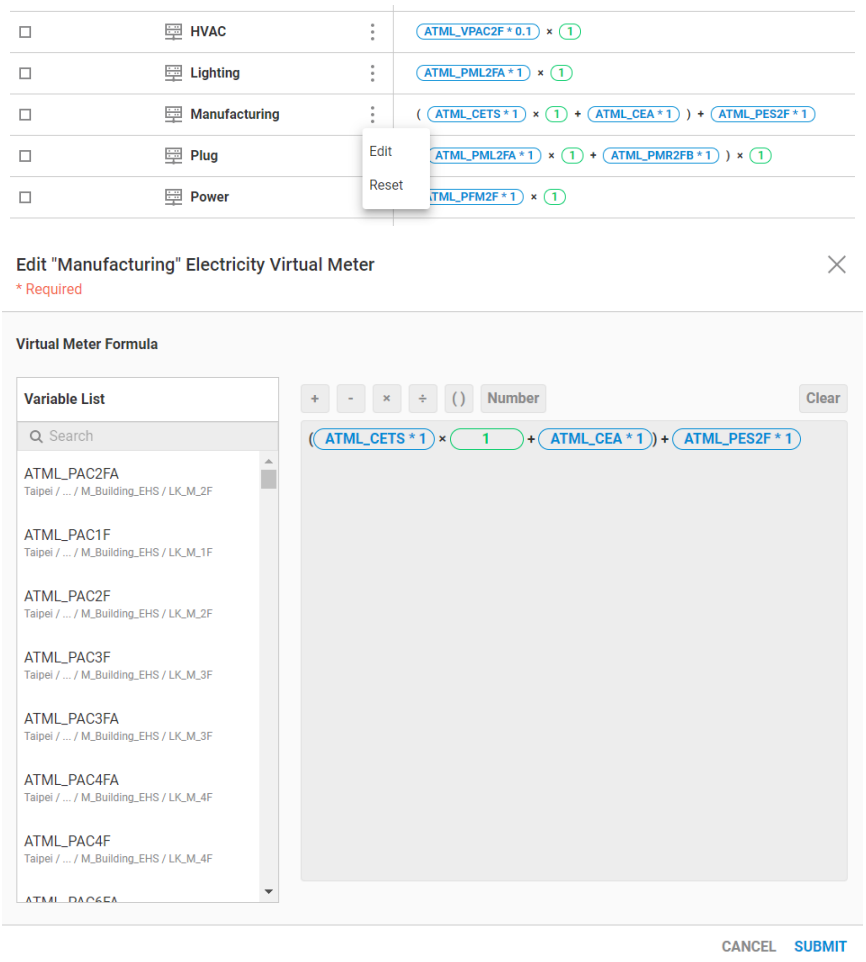


vii. Virtual Meter

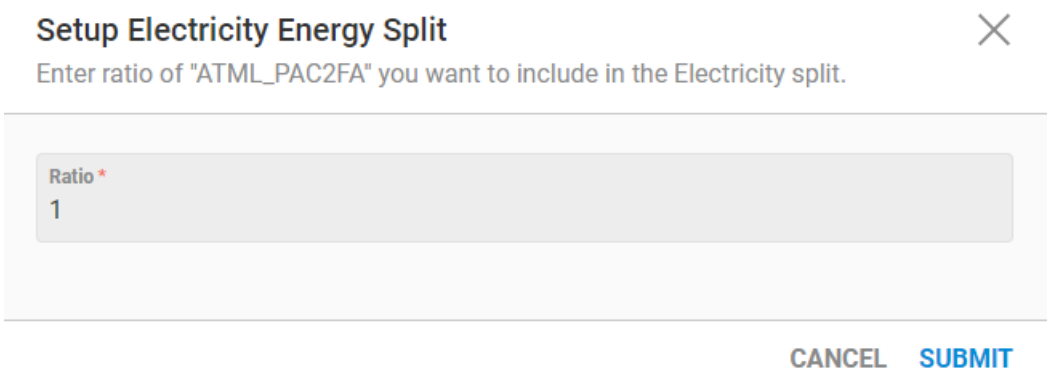
Virtual Meter setting: Click "Virtual Meter" and use formulas to set the energy consumption ratio of different devices (Machine) to calculate the energy consumption statistics of a virtual device.



Operation example: Click the "Electricity" or other sub-tabs above, select any device, and press Edit



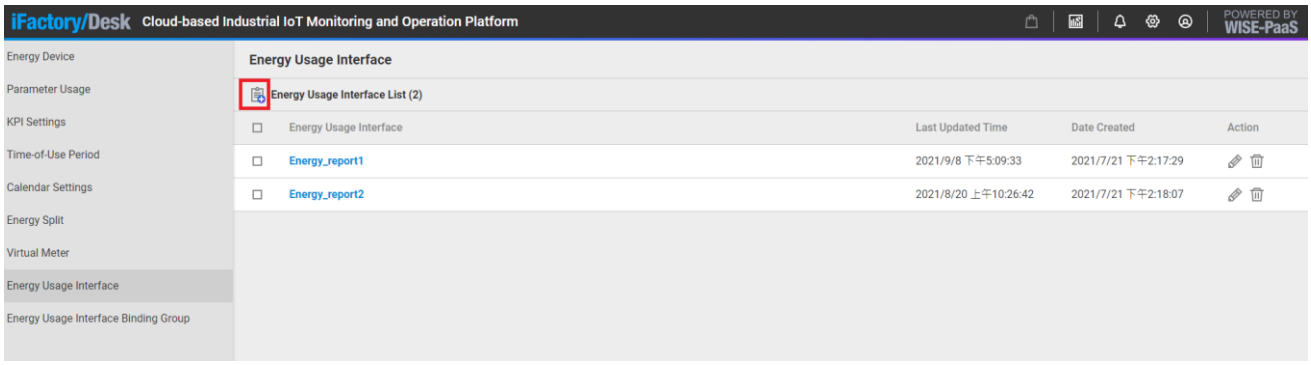
The left side of the formula setting page shows different devices (Machine) as the formula operands, and the upper side shows the addition, subtraction, multiplication, and division operators, and number settings. Click on a device to set the scale (0~1), and press the SUBMIT button to finish editing.

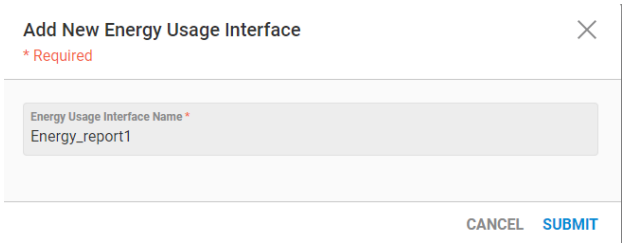


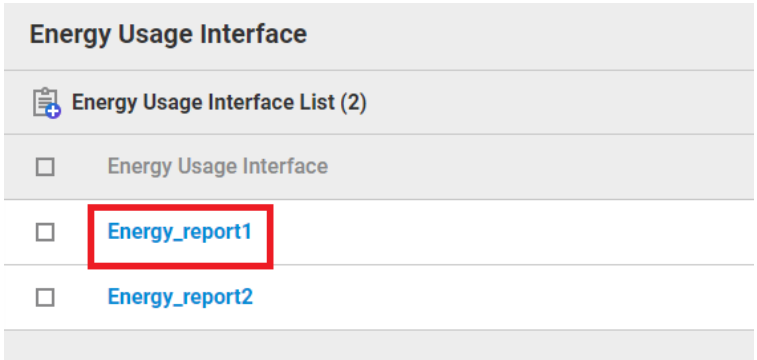
viii. Energy Usage Interface

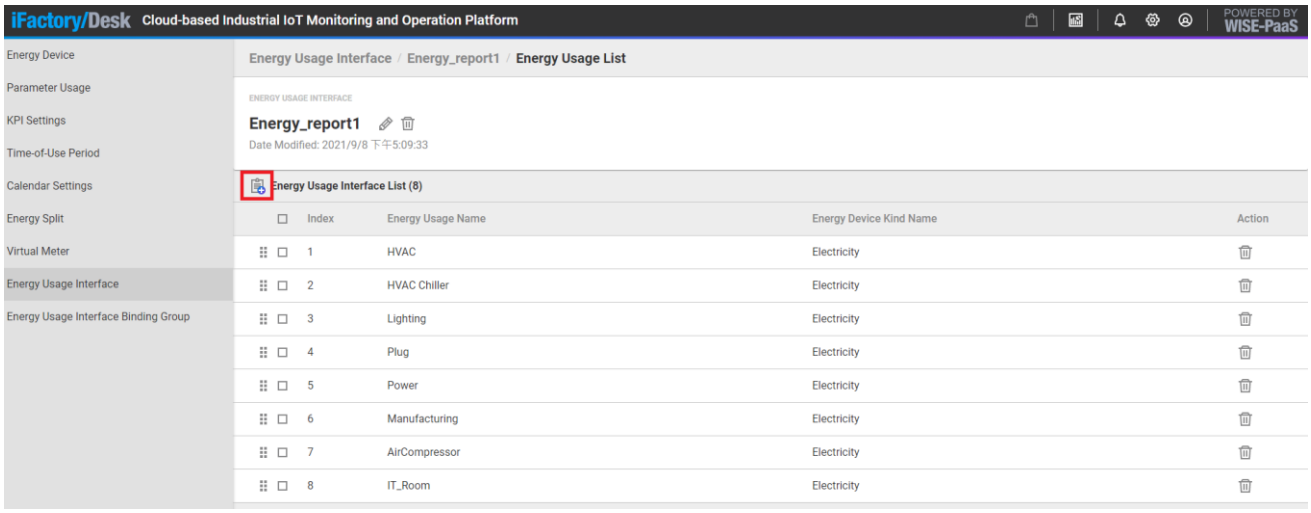
Energy Usage Interface setting: Click "Energy Usage Interface", you can set different Energy Usage grouping and sorting, as the display setting of the Dashboard report content.

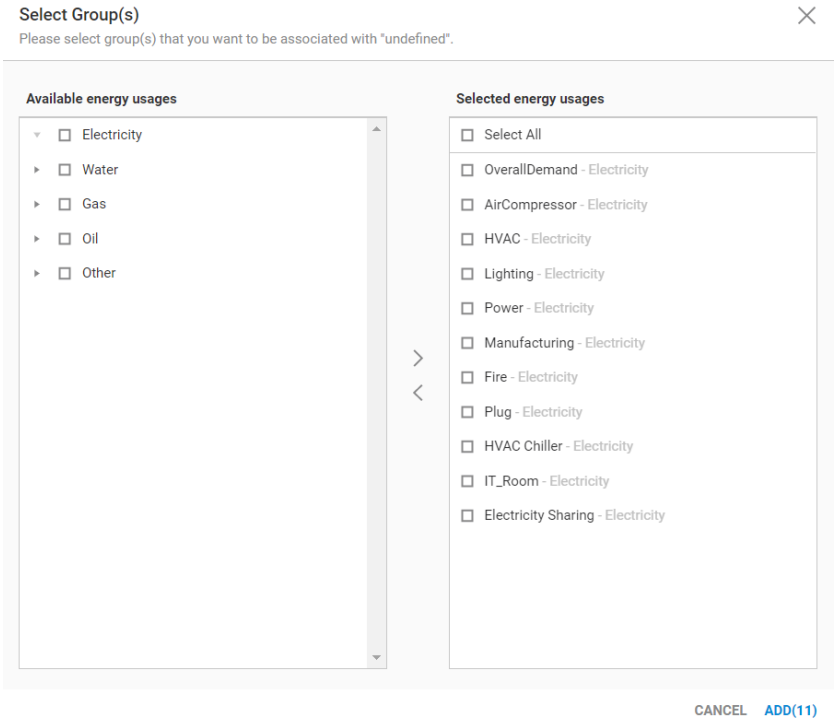
Operation example: Click the tab above, fill in the Energy Usage Interface Name and press the SUBMIT button. Click the newly added name link, enter the Energy Usage List page and press the button  , add the required Energy Usage and press ADD to finish editing.





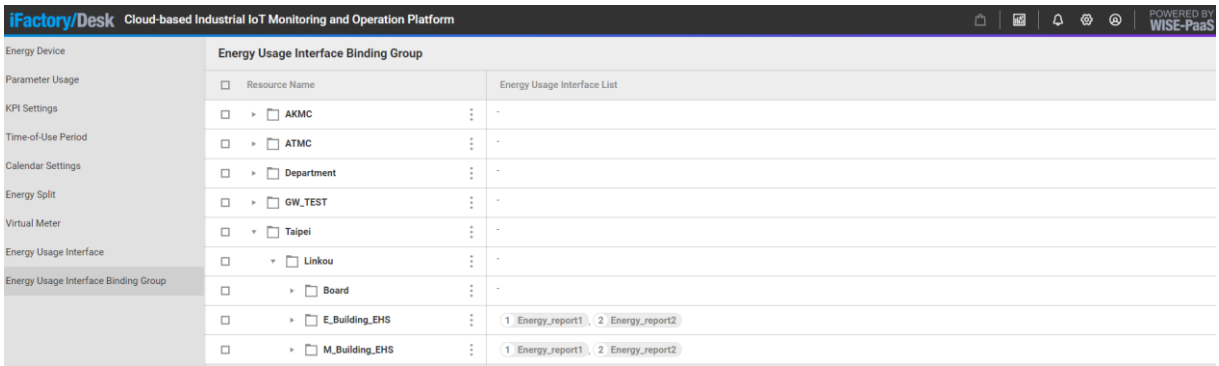






ix. Energy Usage Interface Binding Group

Energy Usage Interface Binding Group settings: Click on "Energy Usage Interface Binding Group" to bind Energy Usage Interface settings for different groups (Group) as the display settings of the Dashboard report content.



Operation example: Select any group, press Edit, add the required Energy Usage Interface and press ADD to complete the setting.