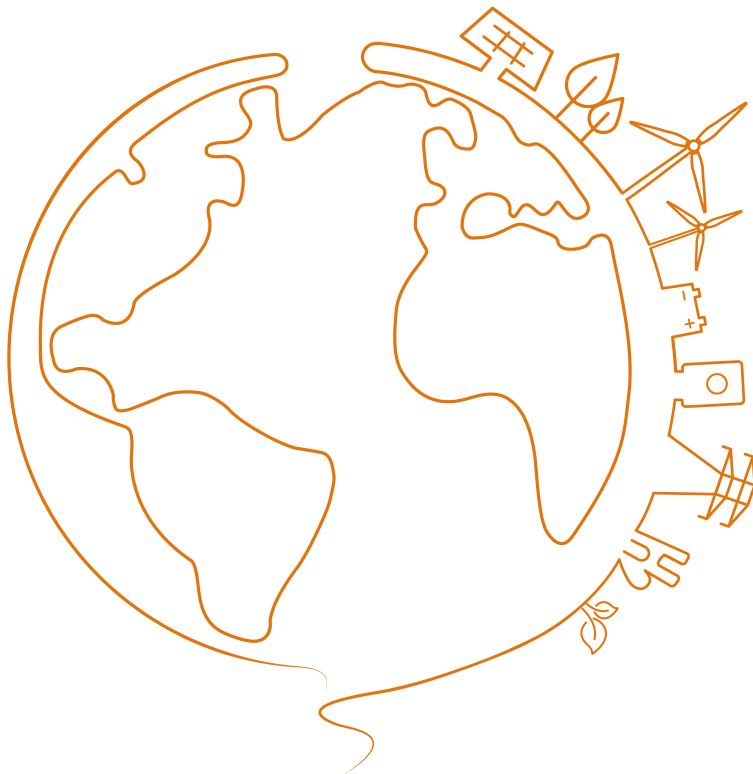


# User Manual

## iSolarDesign 4.1

iSolarDesign



# All Rights Reserved

## All Rights Reserved

No part of this document can be reproduced in any form or by any means without the prior written permission of Sungrow Power Supply Co., Ltd (hereinafter "SUNGROW").

## Trademark

**SUNGROW** and other Sungrow trademarks used in this manual are owned by SUNGROW. All other trademarks or registered trademarks mentioned in this manual are owned by their respective owners.

## Software Licenses

- It is prohibited to use data contained in firmware or software developed by SUNGROW, in part or in full, for commercial purposes by any means.
- It is prohibited to perform reverse engineering, cracking, or any other operations that compromise the original program design of the software developed by SUNGROW.
- To further optimize our service system and clarify service boundaries, iSolarCloud does not provide remote monitoring services for devices installed in the United States or Canada. If you choose to use any iSolarCloud-related services in these regions by any means, you shall bear full responsibility for any resulting issues, disputes, losses, or liabilities.

# About This Manual

## Target Group

This manual is applicable to plant designers. The plant designer is required to meet the following requirements:

- Understand the working principle and operation method of inverter.
- Be familiar with applicable local standards and relevant safety regulations on electrical systems.

## Symbols in the Manual



**NOTE** indicates supplementary information, emphasis on specific points, or tips that might help to solve your problems or save your time.

## Requirements

Item	Requirements
Browser	Chrome 60 and above, Safari 10 and above, Firefox 60 and above
Resolution	1920*1080 (recommended); 1366*768 (supported)

## Main Content

This manual is to provide readers with an overview of how to use iSolarDesign.



User interfaces presented in this manual come from iSolarDesign V4.0. They are for reference only and may differ from the user interface you actually see.



The supported scenarios vary by server. For details, see the following table.

Supported Scenario	International Server	European Server	Australian Server
Residential	✓	✓	✓
Commercial and industrial	✓	✓	✓
Microinverter	✗	✓	✗
Optimizer	✓	✓	✗
RSD	✓	✗	✗

# Contents

---

All Rights Reserved.....	I
About This Manual.....	II
<b>1 Common Operations.....</b>	<b>1</b>
1.1 Account Registration.....	1
1.2 Login.....	1
1.3 Logout.....	2
1.4 Reset Password.....	2
<b>2 Home.....</b>	<b>4</b>
<b>3 Project List.....</b>	<b>6</b>
3.1 Card View.....	6
3.2 List View.....	8
<b>4 Create Project.....</b>	<b>9</b>
4.1 Quick Design.....	11
4.1.1 Project Information.....	11
4.1.2 Configure PV Modules.....	12
4.1.3 Electrical Design.....	13
4.1.4 Generate Report.....	15
4.2 Standard Design.....	17
4.2.1 General Information.....	18
4.2.2 Uploading Map.....	21
4.2.3 Tariff and Load Settings.....	22
4.2.3.1 Tariff Setting.....	24
4.2.3.2 Load Settings.....	25
4.2.4 Plant Modeling.....	27
4.2.5 View Module Layout.....	30
4.2.6 Electrical Design.....	33
4.2.6.1 Electrical Configuration.....	33
4.2.6.2 Configure Inverters and Strings.....	34
4.2.6.3 Cable Loss.....	36
4.2.7 Economic Analysis.....	37
4.2.8 Generate Report.....	40
4.2.8.1 Export to iSolarCloud.....	45
4.3 PV & ESS Optimization.....	47
4.3.1 General Information.....	48

4.3.2 Tariff and Load.....	49
4.3.3 Planning Settings.....	49
4.3.4 Economic Analysis.....	51
4.3.5 Report Generation.....	52
<b>5 Settings.....</b>	<b>55</b>
5.1 Custom Module.....	55
5.2 Device Price.....	56
5.3 Tariff Template.....	56
<b>6 Feedback.....</b>	<b>57</b>
<b>7 Personal Setting.....</b>	<b>59</b>
<b>8 Messages.....</b>	<b>60</b>
<b>9 Contact Information.....</b>	<b>61</b>

# 1 Common Operations

## 1.1 Account Registration

This section introduces the registration process of an iSolarDesign account.

### Prerequisites

The computer can access the network.

### Procedure

**Step 1** Enter [https:// design.isolarcloud.com](https://design.isolarcloud.com) in the address bar of a browser. Press **Enter** to enter the iSolarDesign login interface.

**Step 2** Click  in the upper right corner to switch the language.

**Step 3** Click **Register** to enter the registration interface.

**Step 4** Enter the email address and click **Verification Code**.

**Step 5** Enter the verification code received in the mailbox.



The verification code is valid in 30 minutes. If it takes more than 30 minutes to register an account, you need to register an account again.

**Step 6** Enter the password twice, and then click **Next**.



Make sure that the password entered twice is the same and consists of at least 8 digits.

**Step 7** Enter **First Name** and **Last Name**, select **Country/Region** and **Time Zone**, tick **I have read and agreed to Terms of Service**, and click **Register**.

--End

## 1.2 Login

### Prerequisite


This section introduces the steps for plant designers to log in to the iSolarDesign system.

### Prerequisites

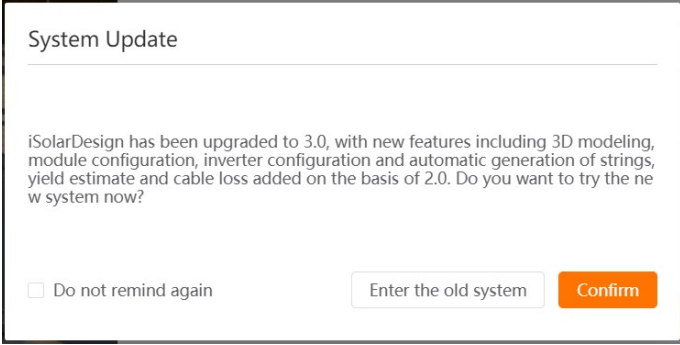
- The account and password are obtained.
- iSolarDesign works normally, and the computer can access the network.

## Procedure

**Step 1** Enter [https:// design.isolarcloud.com](https://design.isolarcloud.com) in the address bar of a browser. Press **Enter** to enter the iSolarDesign login interface.

**Step 2** Click  in the upper right corner to switch the language.

**Step 3** Select the server address, enter the email address and password, and click **Login**. The prompt box below may pop up.



The image shows a 'System Update' dialog box. At the top, it says 'System Update'. Below that, there is a horizontal line. The main text reads: 'iSolarDesign has been upgraded to 3.0, with new features including 3D modeling, module configuration, inverter configuration and automatic generation of strings, yield estimate and cable loss added on the basis of 2.0. Do you want to try the new system now?'. At the bottom left, there is a checkbox labeled 'Do not remind again'. At the bottom right, there are two buttons: 'Enter the old system' (a light blue button) and 'Confirm' (an orange button).

Click **Confirm** to enter the 3.1 system, and click **Enter the old system** to enter the home page of the 2.0 system. Tick **Do not remind again** and this box will not pop up later.



Users can select **Remember Me** as needed to facilitate the next login.

--End

## 1.3 Logout

This section introduces the steps for plant designers to log out the iSolarDesign system.

### Prerequisites

- Logged into the iSolarDesign system.

### Procedure

Click **Logout** in the drop-down list of **User Account** in upper-right corner of the interface.

## 1.4 Reset Password

### Prerequisite

This section introduces how to retrieve the password if the plant designer forgets it.

### Prerequisites

- Already have an account.
- iSolarDesign works normally, and the computer can access the network.

## Procedure


**Step 1** Enter [https:// design.isolarcloud.com](https://design.isolarcloud.com) in the address bar of a browser. Press **Enter** to enter the iSolarDesign login interface.

**Step 2** Click **Reset Password** to go to the **Account and Security** interface.




**Step 3** Enter an email address and click **Next**.

**Step 4** Click **Send Verification Code**. Enter the verification code received in the mailbox and click **Next**.

 The verification code is valid in 30 minutes.

**Step 5** Enter a new password and click **Modify**.

 The new password must meet the following requirements:

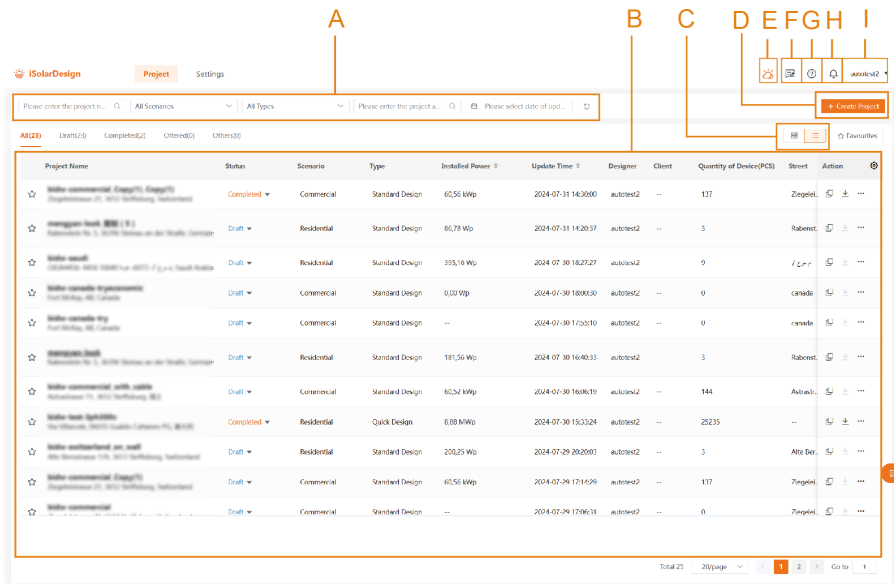
- The password consists of at least 8 digits.
- The password contains at least one letter and one number.


**Step 6** It is prompted that the modification is completed and the system automatically goes back to the login interface.

--End

## 2 Home

The home page after a successful login is as follows.



No.	Name	Description
A	Search bar	Fill in conditions to search for the required projects.
B	Project list	The project that the user has created. See <a href="#">3 Project List</a> for details.
C	Switch between card/list display	The projects can be displayed in <b>Card View</b> or <b>List View</b> . See <a href="#">3 Project List</a> for details.
D	Create project	Click it to create a new project. See <a href="#">4 Create Project</a> for details.
E	Go to iSolarCloud	Click  to go to the iSolarCloud O&M system.
F	Feedback	Make suggestions for iSolarDesign on this interface. See <a href="#">6 Feedback</a> for details.
G	Help	Check out the <b>User Manual</b> and <b>Help Videos</b> .
H	Message	Click it to go to the notification interface. See <a href="#">8 Messages</a> for details.

---

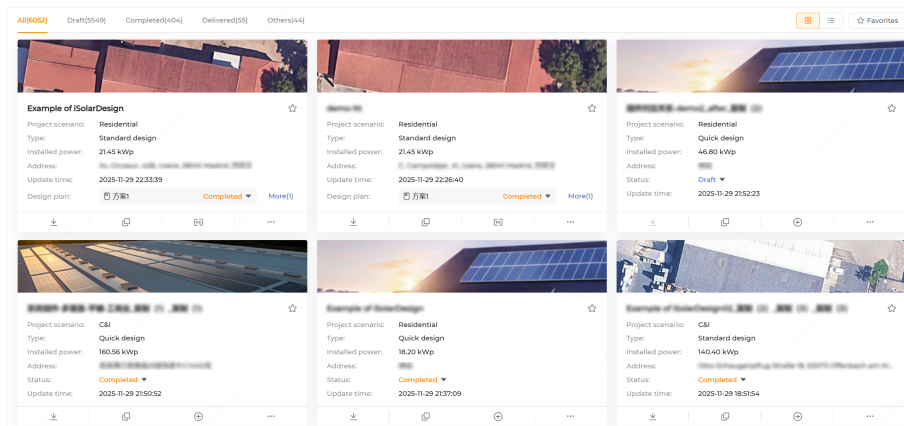
N o.	Name	Description
1	User account	Display the current user account. Click it to go to the <b>Personal Settings</b> interface or to <b>Exit</b> . See <a href="#">7 Personal Setting</a> for details.

---

# 3 Project List

After a successful login, users will go to the **Item** interface by default. Switching between **Card View** and **List View** is supported.

## 3.1 Card View



Projects in the card view are listed in a descending order of the latest update time and can be filtered by the project status above.

A card contains the following contents:

- **Project name:** The project name.
- **Project scenario:** Residential or C&I.
- **Installed power:** The total power of the project.
- **Address:** The address of the project. You can hover the cursor over the address to view the detailed address information.
- **Status:** The status of the project. The project status includes **Draft**, **Completed**, **Delivered**, and **Others**. Click ▼ to update the project status.





If the project is in the **Draft** status, the status cannot be changed.

- **Update time:** The latest update time of the project.


The following functions can be performed on the card:






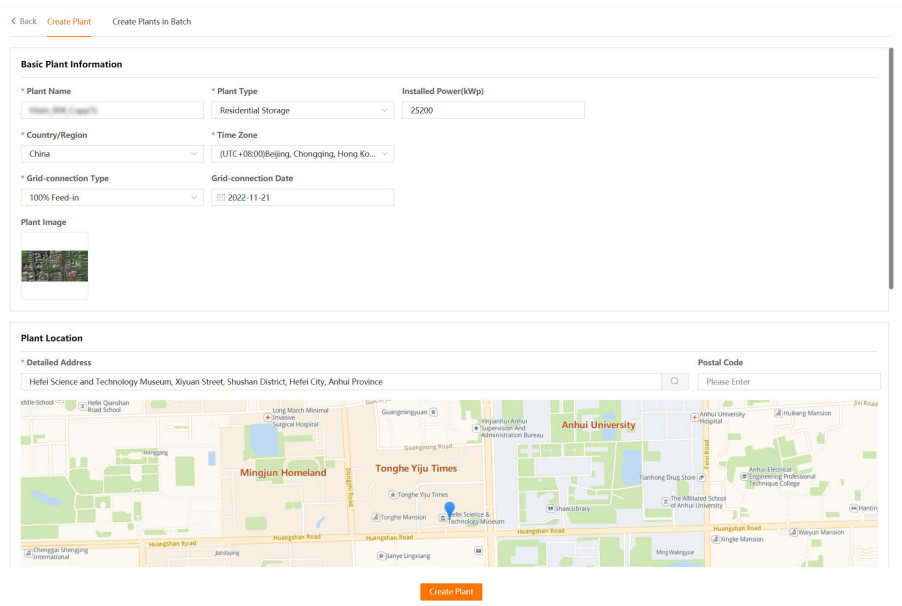
Some of the functions are contained in \*\*\*. Click it to expand and select the functions.

- Favorites/Remove from favorites: Click  to add the project to **Favorite**, and click  to remove the project from the favorites.




Click  in the upper right corner of the page to view all the favorite projects, which are, by default, arranged in a descending order of the time they are added to the favorite list.

- Download: Click  to download the project overview and layout.
- Copy: Click  to copy the data of the current project. The name of the copied project defaults to **Project name\_copy (1)**.
- **Plan comparison:** If a project has multiple plans, click  to open the **Plan comparison** dialog box. After you select two plans to be compared, you will be directed to another page for detailed comparison.
- **Create plant:** Clicking it will direct you to the iSolarCloud platform. In iSolarCloud, **Basic plan information** is automatically filled. You need to enter information in **Owner information** and then click **Create plant**.




If the project is in the **Draft** status, **Create plant** is disabled.

- **Add new plan:** Clicking it opens the **Add new plan** dialog box. After you enter the new plan name, you will be directed to the **View module layout** page, where you can design your new plans (up to five plans).
- **Share report:** Click **Share report** to send the report and layout file via email by entering the recipient name and email.
- **Delete:** Click  to delete the project.

## 3.2 List View

All(523)										Draft(5049)	Completed(367)	Offered(54)	Others(43)	Favorites
Project name	Status	Scenario	Type	Installed power	Update time	Designer	Client	Quantity	Action					
☆ <b>1000000-1000000</b>	Completed	Commercial	Standard design	68.85 kWp	2025-11-01 17:32:22	Designer	Client	171	📄 📄 ⋮					
☆ <b>1000000-1000000</b>	Draft	Residential	Standard design	0.00 Wp	2025-11-01 16:13:56	Designer	Client	0	📄 ⋮					
☆ <b>1000000-1000000</b>	Draft	Residential	Standard design	273.00 kWp	2025-11-01 13:46:53	Designer	Client	30	📄 ⋮					
☆ <b>1000000-1000000</b>	Draft	Commercial	Standard design	62.48 kWp	2025-11-01 12:13:50	Designer	Client	148	📄 📄 ⋮					
★ <b>1000000-1000000</b>	Draft	Residential	Standard design	131.44 kWp	2025-11-01 12:03:45	Designer	Client	318	📄 ⋮					
☆ <b>1000000-1000000</b>	Draft	Commercial	Quick design	--	2025-11-01 11:40:20	Designer	Client	0	📄 ⋮					
☆ <b>1000000-1000000</b>	Draft	Residential	Quick design	17.78 kWp	2025-11-01 09:37:46	Designer	Client	29	📄 ⋮					
☆ <b>1000000-1000000</b>	Draft	Residential	Quick design	3.94 kWp	2025-10-31 18:43:07	Designer	Client	26	📄 ⋮					
☆ <b>1000000-1000000</b>	Completed	Commercial	Standard design	62.48 kWp	2025-10-31 18:08:26	Designer	Client	148	📄 📄 ⋮					
☆ <b>1000000-1000000</b>	Draft	Commercial	PV & ESS optimizati	1.00 GWp	2025-10-31 17:12:05	Designer	Client	1500115	📄 ⋮					

Projects in the list view are listed in a descending order of the latest update time and can be filtered by the project status above.

The following contents are included:

- **Project name:** The project name.
- **Status:** The status of the project. The project status includes **Draft**, **Completed**, **Delivered**, and **Others**. Click ▼ to update the project status.



If the project is in the **Draft** status, the status cannot be changed.

- **Scenario:** Residential or C&I.
- **Type:** Either standard design or quick design.
- **Installed power:** The total power of the project.
- **Update time:** The latest update time of the project.
- **Designer:** The creator of the project.
- **Client:** The client name.
- **Creation time:** The time when the project is created.
- **Quantity of devices:** The number of inverters in the project.
- **Street, City, and Country:** The location information of the project.
- **Action:** Actions include **Copy**, **Plan comparison**, **Download**, **Create plant**, **Add new plan**, **Share report**, and **Delete**.
- **Column display:** Click ⚙️ in the upper right corner of the list. Tick the columns to be displayed in the dialog box and click **Confirm**. Click **Reset** to restore the default list.



**Plant name** and **Action** are fixed columns and cannot be ticked.

## 4 Create Project

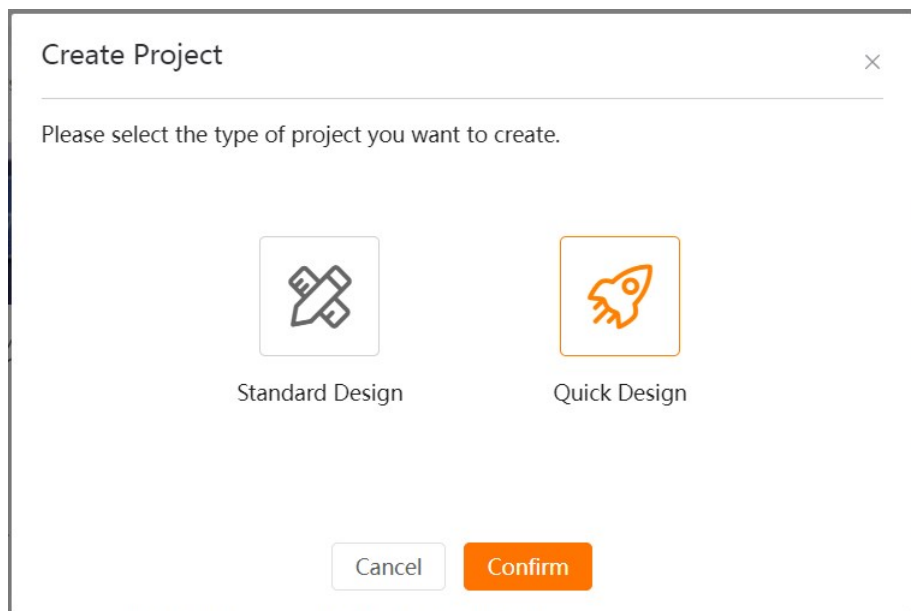
### Prerequisites

- You have logged in to iSolarDesign.
- Your computer has Internet access.

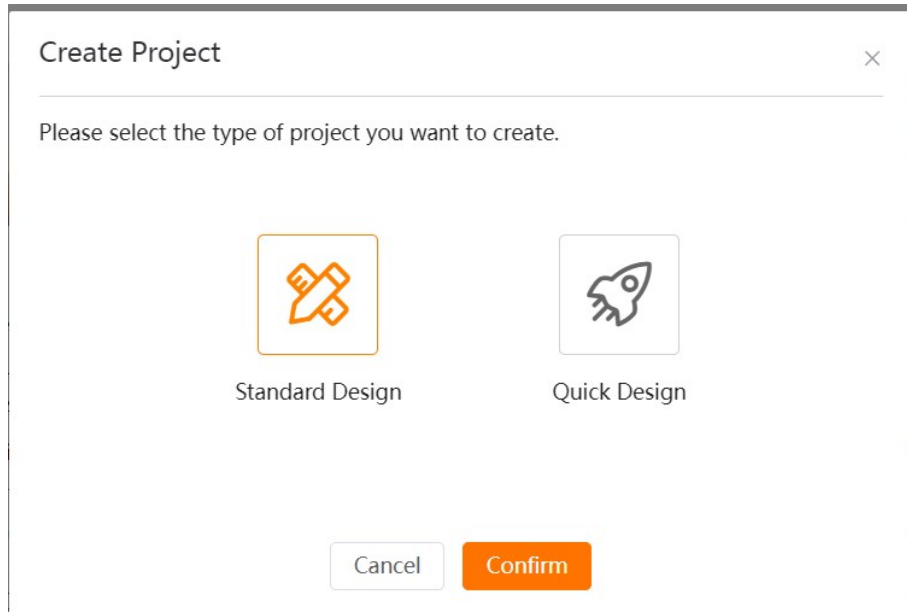
### Project Application Scenarios

The system supports residential and C&I scenarios. Click **Create project** in the upper right corner, select the required scenario and project type, and proceed with the design.

Residential:



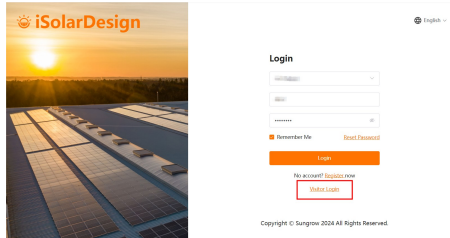
C&I:



Scenario	Project type	Description
Residential	Quick design	Applicable to residential scenarios. No 3D modeling is required. A plan and report can be generated quickly after project configuration. For details, see <a href="#">4.1 Quick Design</a> .
	Standard design	Applicable to residential scenarios. 3D modeling is performed to simulate real environments and assist in plant design. For details, see <a href="#">4.2 Standard Design</a> .
C&I	Quick design	Applicable to small C&I systems. No 3D modeling is required. A plan and report can be generated quickly after project configuration. For details, see <a href="#">4.1 Quick Design</a> .
	Standard design	Applicable to small C&I systems. 3D modeling is performed to simulate real environments and assist in plant design. For details, see <a href="#">4.2 Standard Design</a> .
	PV & ESS optimization	Applicable to large C&I scenarios. Supports capacity calculation for PV-ESS scenarios and ESS-only scenarios, providing capacity calculation and revenue analysis. For details, see <a href="#">4.3 PV &amp; ESS Optimization</a> .

## 4.1 Quick Design

- Log in as Visitor  
On the login page, click **Visitor login** to enter the **Quick design** page.



- Log in with an Account  
Log in to iSolarDesign, click **Create project** in the upper right corner, select **Residential** or **C&I** according to the desired scenario, and then select **Quick design**.

The workflow of quick design is shown below:

Item	Description
Project information	Fill in general information of the project. See <a href="#">4.2.1 General Information</a> for details.
Configure PV modules	Configure PV modules and PV arrays. See <a href="#">4.2.5 View Module Layout</a> for details.
Electrical design	Configure inverters and strings. The system will automatically recommend plans. See <a href="#">4.2.6 Electrical Design</a> for details.
Generate report	Display key project information, such as overview, yield forecast, and device list. The report can be downloaded locally. See <a href="#">4.2.8 Generate Report</a> for details.

### 4.1.1 Project Information

#### Step 1 Fill in General information.

**General information**

\* Project name  Available area(m<sup>2</sup>)

\* Project address

\* Latitude(°)  \* Longitude(°)

\* Min. ambient(°C)  \* Max. ambient(°C)

\* Project scenario  \* Grid type

Consumption(kWh)   Annual  Monthly

Parameter	Description
Project name*	User-defined name for the project.
Available area (m <sup>2</sup> )	Available area of the site where the PV modules are installed.
Project address*	Specific location of the project.
Latitude (°)*	Auto-filled with the latitude of the project address.
Longitude (°)*	Auto-filled with the longitude of the project address.
Max. (°C)*	Maximum ambient temperature in the place where the project is located. Range: 0 to 60.
Min. (°C)*	Minimum ambient temperature in the place where the project is located. Range:- 40 to 30.
Grid type*	Select an option based on the actual number of phases and the voltage. For the voltage parameters, refer to the rated AC voltage of the specific inverter model.



- Parameters with an asterisk (\*) are required.
- To configure a project with microinverters, set the Project scenario to **Residential**, and ensure the selected **Grid type** is within the range supported by the microinverters, such as 1ph 220V.

**Step 2** (Optional) Fill in **Customer information**, including **Full name** and **Company**.

--End

#### 4.1.2 Configure PV Modules

Complete all project information to configure modules.

**2 Configure PV Modules**

**PV Modules**

\* Type  
 System Module  Customize Module

\* Manufacturer  \* Model

**PV Array 1**

\* Module Quantity  \* DC Power(kW)

Mounting Type

Flush Mount
  Tilt
  Dual Tilt

\* Azimuth [°]  \* Tilt [°]


Add PV Array


**Step 1** Select a PV module type: **System module** or **Customize module**.



Note: For users who access quick design via Visitor login, only **System module** can be selected.

If system modules do not meet your requirements, you can customize modules.

Select **Customize module**. Click  on the right. See [5.1 Custom Module](#) for details.

**Step 2** Select a module manufacturer from the **Manufacturer** drop-down list. Select a module model from the **Model** drop-down list. Click  to view module details.



For projects involving microinverters, modules with the following power ranges are recommended:

- S1600S/S800S/S450S: 375 W–570 W modules.
- S1000S: 375 W–650 W modules.

**Step 3** Set the number of modules in **Modules**.


**Step 4** Select a mounting type. Options include: **Flush mount**, **Tilt**, and **Dual tilt**.

If **Tilt** is selected, set the **Roof azimuth(°)** and **Roof tilt(°)**.

If **Dual tilt** is selected, set the **Ridge direction** and **Relative tilt**.

**Step 5** If there are multiple PV arrays, click **Add PV array** and refer to steps 2–4 for parameter configuration.



To rename an array, click the  icon on the right and click anywhere outside the field to save the settings.

--End

### 4.1.3 Electrical Design

Electrical design includes electrical configuration and plan configuration.

**Step 1** Perform **Electrical configuration**. Based on site conditions, select **Configure microinverter**, **Configure optimizer**, **Configure RSD**, **Configure battery**, **Configure communication module**, and **Configure meter**, and set the **Target DC/AC ratio**.



The devices that are set up in the **Electrical configuration** section will be listed in the device list on the **Generate report** page.

**Electrical configuration** ▼

Configure microinverter ⓘ

Configure optimizer

Optimizer-to-module ratio Optimizer model

Configure RSD ⓘ

Configure battery ⓘ

Configure communication module

Configure meter

\* Target DC/AC ratio

↻

- If **Configure microinverter** is selected, other options cannot be selected simultaneously, and the **Target DC/AC ratio** is 1:1 by default.
- If **Configure optimizer** is selected, set the **Optimizer type** and **Optimizer model** according to the project.
- If **Configure battery** is selected, enter the **Total capacity (kWh)**. The system will recommend an actual capacity based on the **total capacity**.



**Total capacity (kWh)** is a required parameter. To ensure energy balance and system stability, the recommended actual capacity may differ from the target capacity. If this does not meet your requirements, you can manually adjust the plan.

**Step 2** Perform **Electrical design**. Based on project conditions, select a system-recommended plan or customize the plan according to actual inventory or preferences.

**Electrical design** ×

i The following is a default solution recommended by the available inventory system. You may customize it based on actual stock or your preferences.

**Precise DC/AC ratio** o

Closest match to target ratio

**Most economical**

Reduce inverter cost and avoid capacity surplus

**Maximize string use**

Maximize PV modules' output power

DC/AC ratio: 1,22/1,2    Inverters: 8 pcs    Module quantity: 800/800 pcs

Inverter model	Number of inverters	Modules	DC/AC ratio
SG40CX	7	735	1,22
SG25CX-P2	1	65	1,21

- **Precise DC/AC ratio:** Closest match to the target DC/AC ratio.
- **Most economical:** Reduce inverter cost and avoid capacity waste.
- **Maximize string use:** Maximize the output power of the PV modules.

- **Customize:** Click **Customize** for any recommended plan to perform a custom design. You can modify, delete, add, or clear configurations.

When there are different PV arrays, the system will combine those with the same parameters, and connect them to the inverters in different groups. The grouping can be modified manually.

Electrical design ×

• Connecting multiple different PV arrays to different MPPTs of the same inverter is not supported. If this does not meet your design requirements, please customize your own plan.

**Precise DC/AC ratio**  
Closest match to target ratio

**Most economical**  
Reduce inverter cost and avoid capacity surplus

DC/AC ratio: 1.2/1.2    Inverters: 3 pcs    Modules: 304/350 pcs

pv array01; pv array02    pv array03; pv array04

DC/AC ratio: 1.19/1.2    Inverters: 2 pcs    Modules: 192/200 pcs

Inverter model	Number of inverters	Modules	DC/AC ratio
SG50CX-P2	1	112	1.2
SG36CX-P2	1	80	1.19



- System-recommended plans may vary based on module quantity and inverter power. If the number of modules or inverter power exceeds the upper limit, no recommended plan will be provided, and you can create a custom design.
- If no inverters are compatible with the current configuration, please modify the configuration list: country, grid type, PV configuration, and electrical settings.

**Step 3** Click **Confirm** to go to **Quick design** and view the generated plan.

**Step 4** If needed, you can flexibly adjust the generated plan.

--End

#### 4.1.4 Generate Report

After completing the operations specified in [4.1.1 Project Information](#), [4.1.2 Configure PV Modules](#), and [4.1.3 Electrical Design](#), click **Save and download**.

**Disclaimer**

This report is made based on the Sungrow Power Supply Co., Ltd. algorithm. Actual yield of your PV plant may vary depending on weather, PV module efficiency and other factors. The simulation results are for reference only. Sungrow Power Supply Co., Ltd. reserves the right of final interpretation.

**General information**



Name: **Bastifassbenderquick** Address: **Bachstraße 5, 58579 Schalksmühle, Germany**  
 Client: **Sebastian Fassbender** Scenario: **Residential**  
 Designer: **Vector** Design time: **2025-08-26 15:35:46**

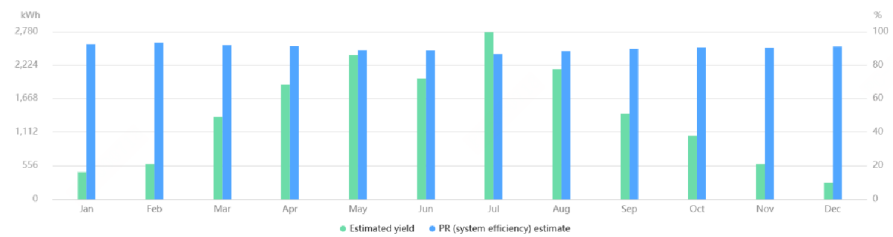
**Data overview**

<b>20 kVA</b> Total AC power	<b>0,96</b> DC/AC ratio	<b>45</b> PV module	<b>19,14 kWp</b> Total DC power	<b>16,91 MWh</b> Annual yield
---------------------------------	----------------------------	------------------------	------------------------------------	----------------------------------

**Bill of materials (BOM)**

Type	Manufacturer	Model	Quantity
Residential and string inverters	SUNGROW	SH20T	1
Battery	SUNGROW	SBR256	1
PV module	Trina Solar Limited	Vertex S+ TSM-NEC9.28 400-425W (A U)_425W	45

**First year yield & system PR forecast**



**String information**

Inverter	MPPT	String	Number of modules	Max. ISC	Min. Vdc	Max. Vdc	Max. Voc
1 * SH20T 1 * SBR256	MPPT1	PV1	15	12,58	479,41	614,88	716,1
	MPPT2	PV1	15	12,58	479,41	614,88	716,1
	MPPT3	PV1	15	12,58	479,41	614,88	716,1

**PV array parameters**

Name	Mounting type	Quantity of modules	DC power(kW)	Angle[°]
PV array 1	Flush mount	45	19,13	Roof tilt
				Roof azimuth
				34
				170

**Social contribution**

<b>16.861,11 kg</b> CO <sub>2</sub> reduction	<b>913,24 kg</b> Save standard coal	<b>6.832,39 trees</b> Equivalent trees planted
--------------------------------------------------	----------------------------------------	---------------------------------------------------

Cancel Save Save and download



If microinverters are configured, the **Device list** also includes microinverter accessories.

## Bill of materials (BOM)



## Precautions

1. If not all PV modules can be connected, PV1 must be connected to avoid microinverter fault and shutdown.
2. The number of public connectors depends on site layout. It is recommended to bring spare connectors during installation.
3. Do not lose the unlock tool. It is recommended to bring spare tools during installation.
4. If a single bus exceeds the max capacity, you can add more buses and configure them in the same manner.

Type	Manufacturer	Model	Quantity
Microinverter	SUNGROW	S450S	1
Microinverter	SUNGROW	SI600S	11
PV module	Trina Solar Limited	Vertex S+ TSM-NEG9.28 400-425W (A U)_425W	45
Microinverter accessory list	--	--	25
T-type AC bus - 2.8m	SUNGROW	MEC-2.8T01	12
AC male connector	SUNGROW	MC-M01	4
T-type connector	SUNGROW	MIC-T32A01	4
T-connector sealing cap	SUNGROW	MC-EC01	4
Terminal removal tool	SUNGROW	MIT-DT01	1

## 4.2 Standard Design

Log in to iSolarDesign, click **Create project** in the upper right corner, select **Residential or C&I**, and then select **Standard design**.

The workflow of quick design is shown below:

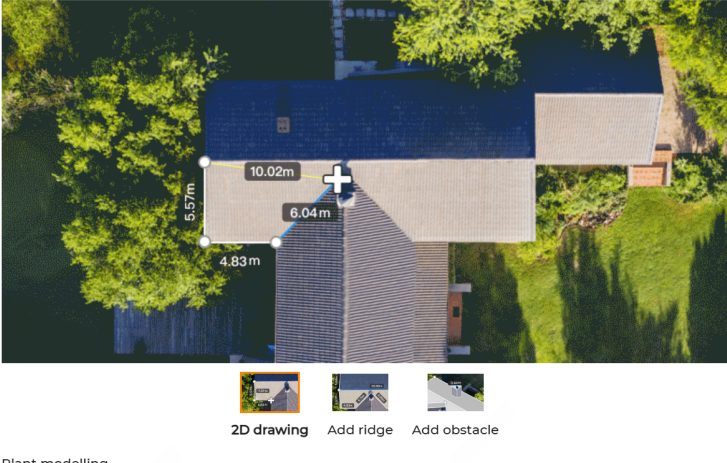
Item	Description
General information	Fill in general information of the project. See <a href="#">4.2.1 General Information</a> for details.
Tariff and load settings	Set the tariff, load, and power consumption settings. Energy storage strategy is available in C&I ESS scenarios. See <a href="#">4.2.3 Tariff and Load Settings</a> for details.
Plant modeling	Draw the system layout and switch between 2D and 3D views. See <a href="#">4.2.4 Plant Modeling</a> for details.
View module layout	Configure PV modules on the roof. See <a href="#">4.2.5 View Module Layout</a> for details.
Electrical design	Complete the inverter and string configuration and check the DC- and AC-side cable loss. See <a href="#">4.2.6 Electrical Design</a> for details.
Economic analysis	Provide the data of project cost to check the possible cost of plant design. See <a href="#">4.2.7 Economic Analysis</a> for details.
Generate report	Display key project information, such as overview, device list, as well as yield and revenue forecast. The report can be downloaded locally. See <a href="#">4.2.8 Generate Report</a> for details.

## 4.2.1 General Information

### Prerequisite

### Novice Guide

Novice guide ×



The screenshot shows a 3D model of a house with a blue roof and a grey wall. A white crosshair is positioned on the roof. Dimensions are displayed: 10.02m for the roof width, 5.57m for the roof height, 4.83m for the wall height, and 6.04m for the wall width. Below the model are three icons: '2D drawing', 'Add ridge', and 'Add obstacle'. Below the icons are the labels '2D drawing', 'Add ridge', and 'Add obstacle'. Below the labels are the text 'Plant modelling' and '2D drawing'. Below the text is a checkbox labeled 'Don't show this window again'. Below the checkbox are two buttons: 'Previous' and 'Next'. Below the buttons are three dots, with the first dot being orange and the other two being grey.

Plant modelling  
2D drawing

Don't show this window again

Previous Next

After clicking **Standard design**, the **Novice guide** window will pop up. This helps you understand how to work with the key functions.

**Step 1** Fill in **General information** of the project.

## Project information

### General information

\* Project name

\* Project address

\* Latitude(°)

\* Longitude(°)

\* Street

\* City

Postal code

Country/region

\* Grid connection type

\* Power factor

On-grid power limit(kW)

Parameter	Description
Project name*	User-defined name for the project.
Project address*	Set the specific address of the project. You can scroll the mouse wheel to zoom in or out and drag the map to aim the site with the location icon.
Latitude (°)*	Auto-filled with the latitude of the project address.
Longitude (°)*	Auto-filled with the longitude of the project address.
Street, City*	The street and city where the project is located, which can be automatically generated after the project address is confirmed.
Postal code	The postal code of the user's address.

Parameter	Description
Grid connection type*	Select <b>100% feed-in</b> , <b>Self-consumption</b> , <b>Zero export</b> , or <b>Off-grid</b> as needed.



Parameters with an asterisk (\*) are required.

## Step 2 Fill in Ambient temperature.

**Ambient Temperature**

\* Min. Ambient[°C]  \* Max. Ambient[°C]

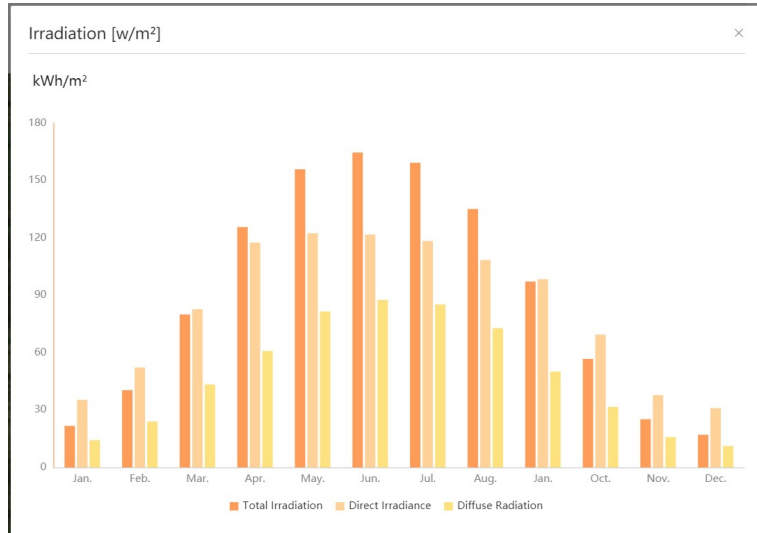
Irradiance Factor  \* Surface Reflectivity


Parameter	Description
Min./Max.*	The lowest/highest ambient temperature allowed at the project location. After the project location is set, the minimum/maximum temperature of the project location is automatically filled in. You can also specify or adjust the temperature in the input box.
Irradiance data, Wind speed data, Temperature data	After filling in the address, click <b>Irradiation data</b> , <b>Wind speed data</b> , and <b>Temperature data</b> to see the estimated value of the data for one year.



Parameters with an asterisk (\*) are required.

**Irradiance data** includes direct normal irradiance (DNI), diffuse horizontal irradiance (DHI), and global horizontal irradiance (GHI). GHI is defined as the total solar irradiance received on a horizontal surface at ground level, including both DNI and DHI. Formula:  $GHI = DHI + (\cos\theta \times DNI)$  (where  $\theta$  is the solar zenith angle,  $0^\circ$  indicates the sun's rays are vertical to the ground, and  $90^\circ$  indicates the rays are parallel to the ground.)



**Step 3** Select the **Grid type**. Click  and select an option based on the actual number of phases and the voltage. For the voltage data, refer to the rated AC voltage of the specific model of the inverter.

\* Grid Type ⓘ

3ph380 V 

**Step 4** (Optional) Fill in the **Customer information**, including **Full name** and **Company**. You can also add remarks here.

**Step 5** (Optional) Upload **Attachment**: Select a file or drag and drop it into the attachment box to upload. The uploaded file can be downloaded locally.

**Step 6** Click **Next** to finish the project configuration.

--End


## 4.2.2 Uploading Map

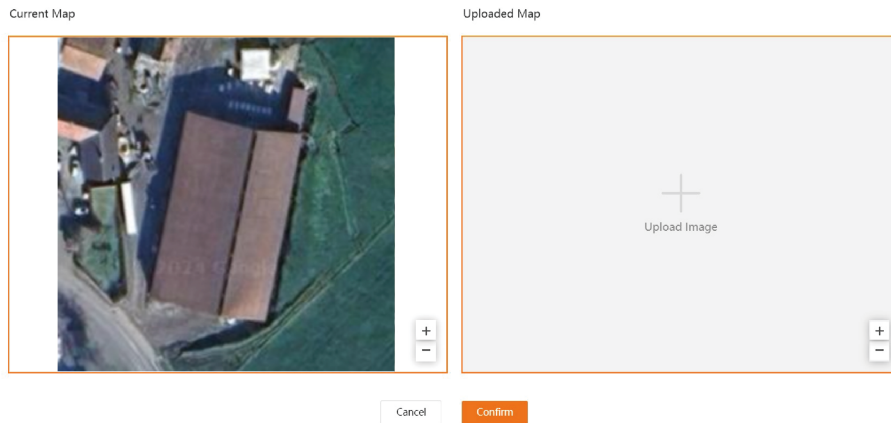
### Prerequisite

If the roof image taken from the map does not assist the user in drawing the roof, the user can upload the map for adjustment.





Before uploading the map, input the project address to determine the roof image.

**Step 1** Click  to upload the map. The interface is shown in the figure below.



**Step 2** Click **Upload image** and select a local image.

**Step 3** After uploading the map, place the two anchor points  and  on the current map and the uploaded map at the same positions to mark the same coordinates.

**Step 4** Click **Confirm**.

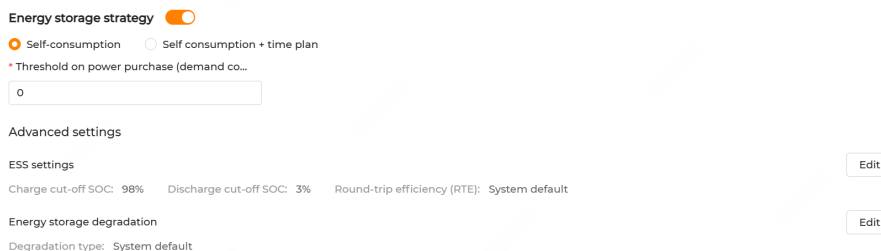
--End

### 4.2.3 Tariff and Load Settings

**Step 1** Select whether to enable **Energy storage strategy** (disabled by default). If enabled, you must configure the following parameters.



If the project involves a C&I ESS scenario, enable **Energy storage strategy**.



- a. Select a strategy. Options include **Self-consumption** and **Self-consumption + time plan**.
- b. Set the **Threshold on power purchase (demand control) (kW)** and **Threshold on power feed-in (demand control) (kW)**.

c. **Advanced settings**, including **ESS settings** and **Energy storage degradation**.

Default values are provided. You can click **Edit** to modify them as needed.

**Step 2** Configure **Grid connection settings**. You can select **Grid-connected** (default) or **Grid-connected/off-grid**.

**Step 3** Configure **Tariff settings**. For details, see [4.2.3.1 Tariff Setting](#).

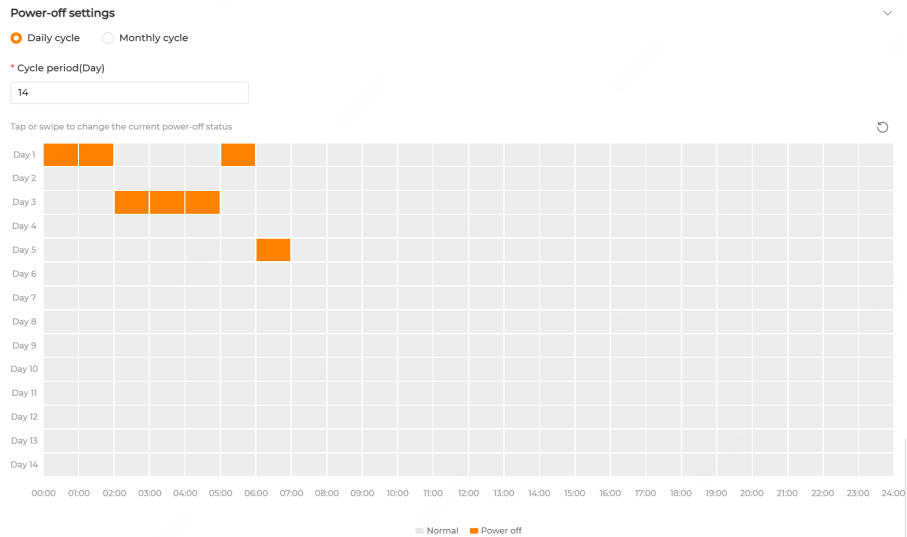
**Step 4** Configure **Load settings**. For details, see [4.2.3.1 Tariff Setting](#).

**Step 5** Configure **Power-off settings**.



When **Grid-connected/off-grid** is selected in the **Grid connection settings** section, **Power-off settings** must be configured.

- **Daily cycle:** Set the **Cycle period (Day)**. The system automatically generates the day-time table shown below. Click time slots to configure the normal/power-off schedule for each day within the cycle.



- **Monthly cycle:** In the month-time table, click time slots to configure the power-off plan for each month of the year.

**Step 6** After completing the tariff and load settings, click **Next**.

--End

### 4.2.3.1 Tariff Setting

**Tariff settings**  
 Not setting a tariff will affect revenue calculation.  
 Currency: EUR

Feed-in tariff ⓘ

\* Feed-in tariff(EUR/kWh)

0

Power purchase tariff ⓘ

\* Tariff type

Fixed tariff

\* Power purchase tariff(EUR/kWh)

0

\* Charge basis

Demand charge

\* Maximum demand mode

Monthly demand cost

\* Monthly demand tariff(EUR/kWh/Month) ⓘ

0

Tariff growth rate ⓘ

Fixed growth rate  Custom growth rate

\* Tariff annual growth rate(%)

0

**Step 1** Define **Feed-in tariff**, which is the price of PV yield transmitted to the grid.

**Step 2** Define **Power purchase tariff**, which is the price of energy purchased from the grid.


- a. Choose **Tariff type** from the options **Fixed tariff** or **Time-of-use tariff**.
- b. With **Fixed tariff**, set up **Power purchase tariff** and **Charge basis**. **Charge basis** includes **Demand charge** and **Capacity charge**.
- c. With **Time-of-use tariff**, set **Charge type** to **Demand charge** or **Capacity charge**.
  - In case of a demand charge, set **Maximum demand mode** to **Monthly demand cost** or **Time-of-use demand charge**. For the monthly demand cost, set **Monthly demand tariff**.
  - In case of a capacity charge, set **Transformer capacity**.

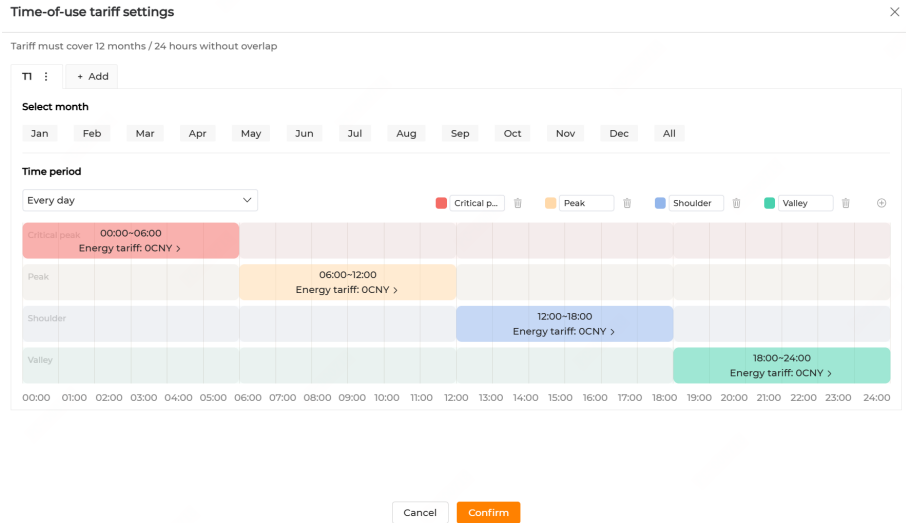
You can follow the two methods below to configure the time-of-use tariff.



The tariff must cover 12 months or 24 hours and cannot overlap.

Method 1:

1. Click the icon  on the right.



2. Select the months to be configured.
3. In the **Time period** dropdown list, set the time plans for **Every day** or **Working days & non-working days**.
4. To add a time plan, click on a vacant time slot in the time period. To modify the duration of an existing time plan, drag and drop it to the left or right.
5. Click on a time plan to fill in the energy tariff for the time slot.



If **Maximum demand mode** is set to **Time-of-use demand charge**, define the **Demand charge** for each time slot.

Method 2:

If a tariff template is pre-configured, click **Tariff template**, choose one, and import.

**Step 3** Choose the tariff growth rate from the options **Fixed growth rate** or **Custom growth rate**. It is used to estimate the annual growth rate of energy purchases.

--End

### 4.2.3.2 Load Settings

**Step 1** Choose how you want to configure the load, including **Model generation**, **Import load profile**, and **Enter tariff bill**.

**Step 2** When you work with **Model generation**:

- a. Set the **Annual consumption**, and the system will automatically calculate the average monthly consumption.
- b. **Monthly consumption** is calculated based on annual consumption and specific consumption scenarios. If the annual consumption data is updated, the monthly consumption will be recalculated accordingly.
- c. Set the **Working days scenarios** and **Non-working days scenarios** according to the electricity demand peak hours each day.

- d. Define **Daily consumption (workday: non-working day)**, which is used to compare the average daily electricity consumption on working days and non-working days to support the time-based allocation of power resources.

Once the settings are completed, you can view the forecast for monthly and daily energy use on the page.

**Load settings**

Model generation  Import load profile  Enter tariff bill

**Power consumption**

\* Annual consumption (kWh)  Average monthly consump...

**Monthly consumption**

Total consumption: 150,000 kWh

* Jan(kWh) <input type="text" value="17250"/>	* Feb(kWh) <input type="text" value="13050"/>	* Mar(kWh) <input type="text" value="11550"/>
* Apr(kWh) <input type="text" value="8400"/>	* May(kWh) <input type="text" value="11550"/>	* Jun(kWh) <input type="text" value="8400"/>
* Jul(kWh) <input type="text" value="14400"/>	* Aug(kWh) <input type="text" value="11550"/>	* Sep(kWh) <input type="text" value="11100"/>
* Oct(kWh) <input type="text" value="11550"/>	* Nov(kWh) <input type="text" value="13950"/>	* Dec(kWh) <input type="text" value="17250"/>

**Daily consumption**

\* Working days scenarios: Commercial (dual pea...  
 \* Non-working days scenarios: Commercial (nighttim...  
 \* Daily Consumption(Wor...: 1 : 1

Working days: Mon % Tue % Wed % Thur % Fri %  
 Off-day: Sat % Sun %

**Step 3** When you work with **Import load profile**, click or drag a file to the upload section to import the load data.



If you do not have a template, you can obtain it by choosing the option **Click to download template**. Importing electricity consumption data of less than one year is allowed, and the missing data will be automatically filled to cover a whole year.

**Template selection**

Date & Time	Load
1/1 00:00	
1/1 01:00	
1/1 02:00	
1/1 03:00	

Vertical (Column: Date + Time)

Date & Time	00:00	01:00	02:00
1/1			
1/2			
1/3			
1/4			

Horizontal (Row: Time; Column: Date)

Time interval  15min  30min  60min

**Step 4** When you work with **Enter tariff bill**:

- Define **Monthly consumption** and **Max. demand** of each month. Upon completion, the pages display the electricity usage and the maximum demand curve.
- In **Advanced settings**, set up **Maximum load power**, **Minimum load power**, and **Average load power**.

- c. Based on the electricity demand peak hours each day, set the **Working days scenarios** and **Non-working days scenarios**, and define **Daily consumption (workday: non-working day)**.

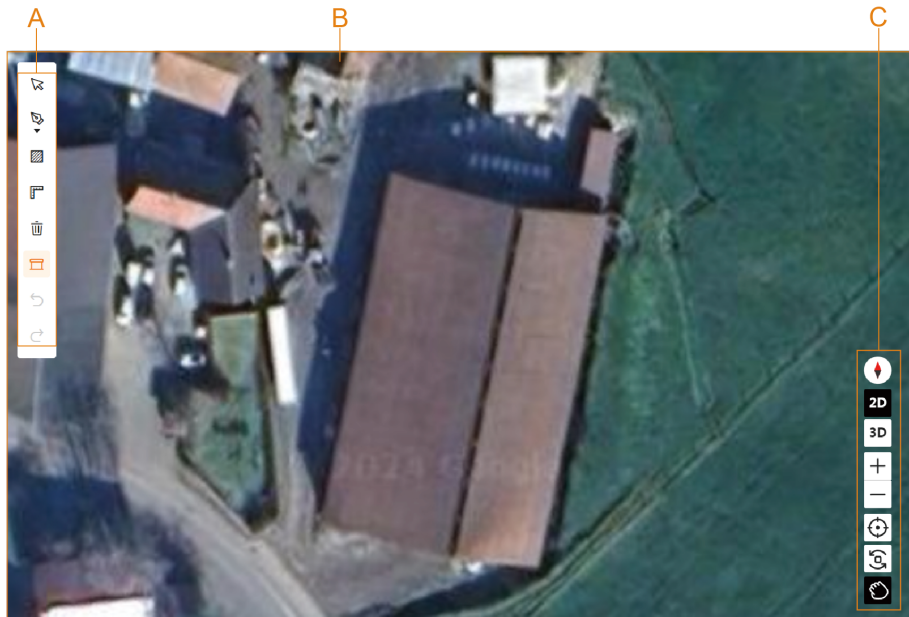


If the data is incomplete, please enter the data spanning at least one month, and the missing data of other months will be automatically filled to ensure data continuity.

--End

#### 4.2.4 Plant Modeling

Use **Plant modeling** to draw graphics on the selected pictures, indicating the edges of and obstacles on the roof, adjusting the scale, removing the background, switching between 2D/3D views, etc. The interface is shown below:



A. Operation bar

B. Drawing area

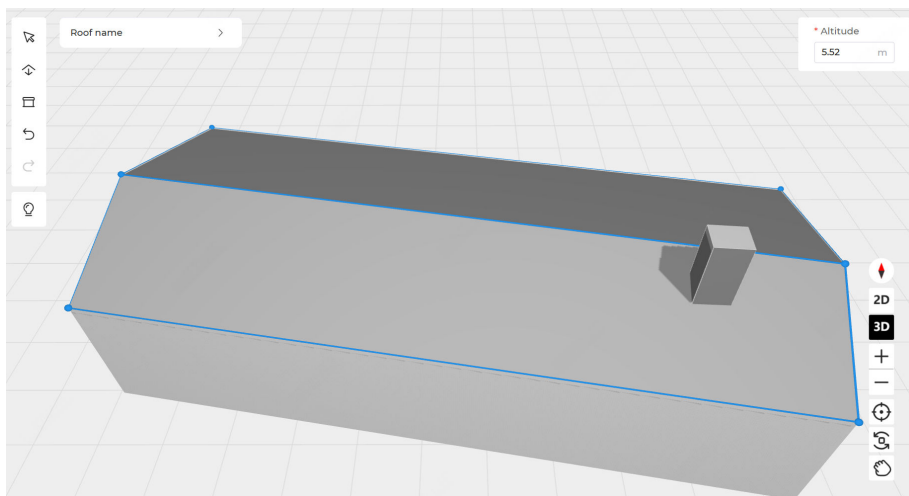
C. Map options



#### Operation Bar

- : Select. Click to select a line segment or a node, and drag and drop it.
  - In 2D view: You can modify the length of a selected line segment, or drag an endpoint or line segment in any direction to adjust the roof shape.













- In 3D view: You can modify the roof height in three methods:
  - Drag a selected line segment up or down to raise or lower the two points on that edge by the same distance.
  - Double-click an endpoint and drag it up or down to move the entire roof up or down by the same height. Rooftop obstacles will be automatically recalculated and adjusted based on the new height.
  - Select an endpoint and enter a height value.



- Hold the Ctrl key and choose individual points, line segments, and obstacles by single clicks, or select them in batch by mouse drag.
- : Draw. Two methods are available:
  - : Click **Polyline drawing** to draw a complex rooftop to reflect its real shape.


Select any points on two edge lines to draw the ridge line.

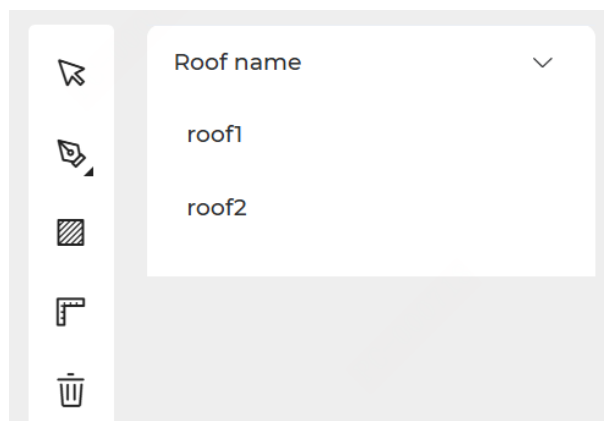
- : Use **Rectangle corner to corner** to create rectangles.
- : Obstacle. Click to draw obstacles on the picture.
-  In 2D view, you can copy, paste, rotate, and move obstacles.
- : Scale. Click and select a line segment to modify the length, and the remaining line segments and obstacles will be scaled accordingly.
- : Delete. Click to delete the selected object.
- : Background. Click to remove or keep the background.
- : Undo. Click to go back to the previous step.
- : Redo. Click to resume the undo step.
- : Zoom in. Click to enlarge the drawing area.
- : Restore. Click to restore to the initial state.

### Drawing Area


A 2D view of the project location is displayed by default. If you upload a map in **Project information**, the satellite map is displayed overlapping with the uploaded map according to the positioning points.









### Roof Name

A roof is named automatically after drawing. To modify the name, choose the roof and then click  to define a custom name.



### Map Options

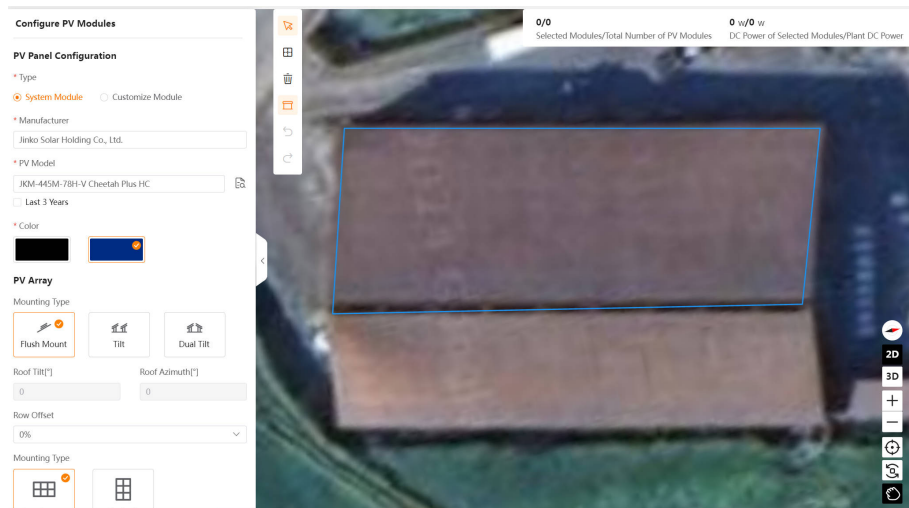
- : Orientation, indicating the orientation of the current view. The view automatically adjusts to north up and south down when you click it.

-  : Click it to switch to the 2D view.
-  : Click to switch to the 3D view.
-  : Reset the view. Click to reset the orientation of the view, and place the drawing area in the middle of the picture.
-  : Zoom in. Click it or scroll the mouse wheel forward to enlarge in the view.
-  : Zoom out. Click it or scroll the mouse wheel back to shrink the view.
-  : Rotate the view. After clicking it, press and hold the left mouse button in the drawing area to rotate the view.
-  : Move horizontally. After clicking it, press and hold the left mouse button to move the view.
-  : Reset the height. In the 3D view, click to reset the height of all objects in the drawing area.

## 4.2.5 View Module Layout



### Prerequisite


**View module layout** allows you to deploy PV modules on the roof drawn in [4.2.4 Plant Modeling](#).



### Step 1 Fill in the information in **PV module configuration**.

- Select a PV module type: **System module** or **Customize module**.

If system modules do not meet your requirements, you can customize modules,  by selecting **Customize module** and clicking  on the right. For details, see [5.1 Custom Module](#).


- Select a module manufacturer from the **Manufacturer** drop-down list.
- Select the module model from the **PV module model**. You can click  to view the details about the selected PV module.
- Select the **Color** of the PV modules.
- Select **Loss analysis**, which by default is disabled. Once enabled, it allows you to specify **Dust loss (%)**, **Diode loss (%)**, and **Backsheet irradiance loss (%)**.

**Step 2** Fill in the **PV subarray** information.

- According to the roof orientation, select one of the following **Mounting type**: **Flush mount**, **Tilt**, or **Dual tilt**.
  - If you select **Flush mount**, choose **Offset**.
  - If you select **Tilt**, fill in **PV module azimuth**, **PV module tilt**, **Frame size**, and **Height**.
  - If you select **Dual tilt**, fill in **Ridge orientation** and **Relative tilt**.
- Set the module layout as **Horizontal** or **Vertical**. Fill in the **Column spacing**, **Row spacing**, and **Distance from obstacles/edge**.

**Step 3** Select a roof. Click **Manual arrangement**, click it with the left mouse button, and drag to create PV module layout as you want. Click **Automatic arrangement** to fill the whole roof with modules.



When you work with **Manual arrangement**, click  to draw guides to divide the roof into different areas for module configuration as shown below.



You can select any one of the PV modules to copy, move, delete, rotate and adjust accordingly for precision.

**Step 4** Click **Advanced settings** to define information like PV module loss, electrical loss, and other loss.

**Advanced settings** ×

**PV module loss**

Ground albedo(%) ⓘ	Soiling loss(%)	PV module quality loss(%)
<input type="text" value="20"/>	<input type="text" value="5"/>	<input type="text" value="0"/>
LID light-induced degradation loss(%)	Aging loss(%)	Bifacial module gain factor(%) ⓘ
<input type="text" value="1.55"/>	<input type="text" value="0.45"/>	<input type="text" value="80"/>

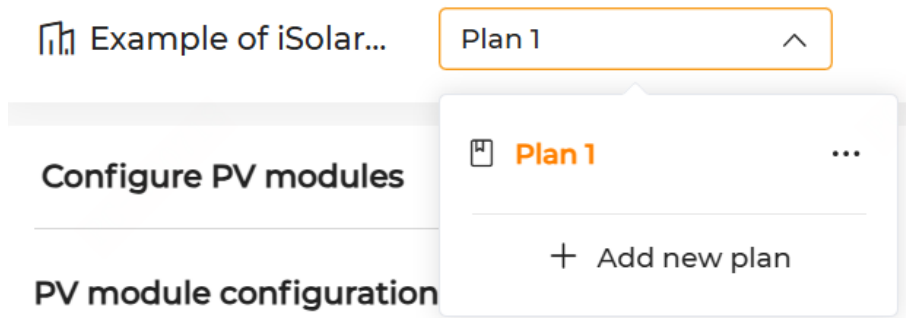
**Electrical loss**

PV module series mismatch(%)	PV module parallel mismatch(%)
<input type="text" value="1"/>	<input type="text" value="0.1"/>

**Other losses**

Thermal loss factor (W/m <sup>2</sup> ·K)	Auxiliary equipment loss rate(%)	System failure rate(%)
<input type="text" value="Open-no shading"/> ▼	<input type="text" value="0"/>	<input type="text" value="1"/>

**Step 5** Plan comparison is available for the standard design. To add a new plan, click the **Plan** field in the upper left corner and click **Add new plan** to define a plan name. You can add, modify, and delete plans if needed.



**Step 6** Click **Configure PV modules**, and then click **Next**.

--End

## 4.2.6 Electrical Design

Go to "Electrical Design" after finishing PV module arrangement and complete the electrical configuration (DC and AC sides). After this, you can check the wiring distance between different devices and the power loss.

### 4.2.6.1 Electrical Configuration

**Step 1** Perform **Electrical configuration**. Based on site conditions, select **Configure optimizer**, **Configure RSD**, **Configure communication module**, and **Configure meter**, and set the **Target DC/AC ratio**.

 The image shows a configuration panel titled 'Electrical configuration'. It has a dropdown arrow on the right. Below the title, there is a checked checkbox for 'Configure optimizer'. Underneath, there are two dropdown menus: 'Optimizer-to-module ratio' set to '1:2' and 'Optimizer model' set to 'SPI200D'. Below these are four unchecked checkboxes: 'Configure RSD', 'Configure battery', 'Configure communication module', and 'Configure meter'. At the bottom, there is a field for 'Target DC/AC ratio' with a red asterisk, set to '1.2' and a refresh icon.

- If **Configure optimizer** is selected, set the **Optimizer type** and **Optimizer model** according to the project.
- In the case of energy storage, the system will recommend the optimal total storage capacity.



**Total capacity (kWh)** is a required parameter.

**Actual capacity:** In manual designs, the total battery capacity is automatically calculated based on the actual designs. To ensure energy balance and system stability, the recommended actual capacity may differ from the target capacity. If this does not meet your requirements, you can manually adjust the plan.

--End

#### 4.2.6.2 Configure Inverters and Strings

**Step 1** Click **Start design** to open the **Electrical design** window.

**Step 2** Based on project conditions, select a system-recommended plan or customize the plan according to your actual inventory or preferences.

- Precise DC/AC ratio: Closest match to the target DC/AC ratio.
- Most economical: Reduce inverter cost and avoid capacity waste.
- Maximized string use: Maximize PV modules' output power.
- Customize: Click **Customize** for any recommended plan to perform a custom design. You can modify, delete, add, or clear configurations.

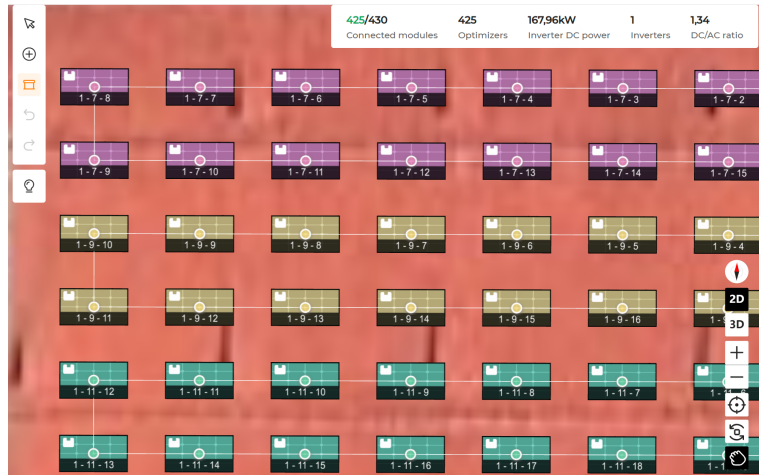


- System-recommended plans may vary based on module quantity and inverter power. If the number of modules or inverter power exceeds the upper limit, no recommended plan will be provided, and you can create a custom design.
- If no inverters are compatible with the current configuration, please modify the configuration list: country, grid type, PV configuration, and electrical settings.
- When there are multiple roofs, the system will combine the PV arrays with the same parameters, and connect them to the inverters in different groups. The grouping can be modified manually.


**Step 3** Click **Confirm**. The generated plan will be displayed on the page, and the module connections will be automatically created on the right.

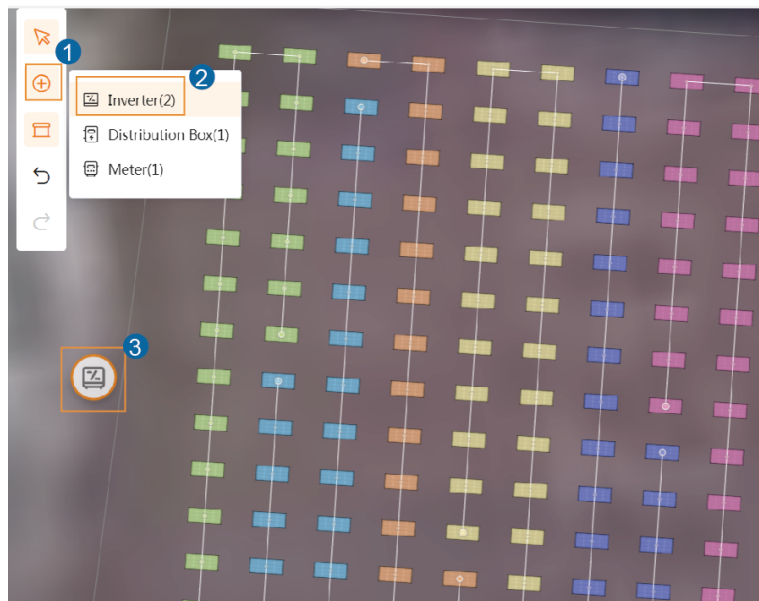


If optimizers/RSDs are configured, short codes will be automatically generated for modules on the right after the plan is generated, as shown in the following figure:



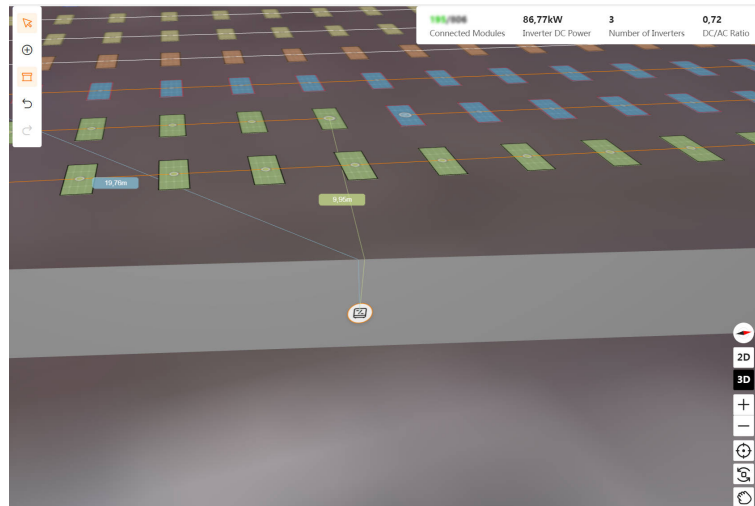
**Step 4** If needed, you can click **Edit plan** to flexibly adjust the generated plan.

**Step 5** Click  in the toolbar to add other devices to the canvas and check the wiring.



You can drag and drop the device to a proper position in the canvas. After adding all inverters and distribution boxes/grid-connection cabinets to the canvas, you can view the power loss information.

**Step 6** Click **3D** to move the inverter to the wall and view the design in a 3D perspective.



**Step 7** Select a cable to check its power loss and other information. Below is an example of an AC cable.

AC	
Power Loss(W)	Cable Loss Rate(%)
1,26	0
Resistance( $\Omega$ )	Voltage Drop(V)
0,02	1,26
Cable Material	Sectional Area(mm <sup>2</sup> )
Copper <input type="text"/>	4 mm <sup>2</sup> <input type="text"/>
Length(m)	
4,30 <input type="text"/>	

--End

#### 4.2.6.3 Cable Loss

Click **Loss Calculation** on the left to check the **Cable Loss**.

- **DC**: Cable loss from the module to the inverter.
- **AC**  Residential: cable loss from the inverter to the power distribution box; commercial: cable loss from the inverter to the grid-connection point.

**Cable Loss** ✕

	DC	AC	Total
Power loss generated during rated operation	386,79 W	10,37 W	397,16 W
Relative power loss produced during operation at the rated voltage.	2,92 %	0,02 %	2,94 %
Cable Length	54,04 m	866,7 m	920,74 m
Cable Cross-section	4 mm <sup>2</sup>	4 mm <sup>2</sup>	4 mm <sup>2</sup>

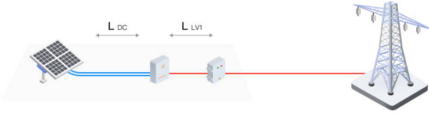
Show Chart ▾

✔ DC

Relative power loss produced during operation at the rated voltage : 2,92%

✔ AC

Relative power loss produced during operation at the rated voltage : 0,02%



Configuration ▾

✔ DC Side    ✔ AC Side

You can set the materials and specifications of the cables used on the DC side and AC side. The system will then calculate the **Resistance**, **Power Loss**, **Voltage Drop**, and **Cable Loss Rate** of the cables accordingly.

in the status column indicates an overly high cable loss. In this case, it is suggested to adjust the cable parameters or the position of the inverter.

### 4.2.7 Economic Analysis

You can provide the project cost in **Economic analysis** to evaluate the possible cost of the plant design.

Currency: EUR ; Discount rate 0 % , Do not pay tax , Tax rate 3 % , [Settings](#)

**Initial installation cost**

\* Initial installation cost type    \* Total device cost(EUR)

Total device cost 0

---

**Device list** Existing device prices   Import price   Request latest price   Get actual quote   [Add device](#)

Device name	Manufacturer	Model/Specification	Quantity	Price	Total price	Remarks	Action
String inverter	SUNGROW	SG125CX-P2	1	--	--	--	
Optimizer	SUNGROW	SP1200D(12)	108	--	--	--	
Power distribution box	--	--	1	--	--	--	
Cable length (AC side)	--	4mm <sup>2</sup> Copper	2,96(m)	--	--	--	
Cable length (DC side)	--	4mm <sup>2</sup> Copper	249,92(m)	--	--	--	
PV module	Jinko Solar Holding Co., Ltd.	Tiger Neo 78HL4-BDV 625-650W_650	216	--	--	--	

Total: 0 EUR

---

**O&M cost** [Add O&M cost](#)

---

**Government subsidies** [Add government subsidies](#)

**Step 1** Click **Settings** and define **Basic economic parameters**.


Parameter	Description
<b>Currency</b>	Select the common currency in the place where the project is located.
<b>Discount rate (%)</b>	It is used to discount expected future earnings back to their present value. When the future earnings are certain, the lower the discount rate, the higher the present value. Changes in the discount rate will result in huge differences in asset valuation results.
<b>Pay tax or not</b>	If <b>Yes</b> is selected, set the <b>Tax rate (%)</b> .
<b>Tax rate (%)</b>	National income tax rate.

### Step 2 Set the **Initial installation cost**.

Type	Description
<b>Fixed price</b>	Enter the price.
<b>Total device cost</b>	Provide the unit price of the device in <b>Device list</b> . The <b>Total device cost</b> will then be auto-filled by the system.
<b>Price per watt</b>	Enter the price per watt in <b>PV system cost</b> and <b>ESS cost</b> . The system will then calculate the <b>Initial installation cost</b> automatically.

### Step 3 Maintain the device list.

Two methods are available:

- Click  in the **Action** column of a device in the **Device list** to edit the unit price or add remarks for the device.



**Sync to “Device price” list in “Settings”:** If this option is selected, this change will be saved in **Settings > Device price** for reuse next time.

- Import from the device price list.
  - If the device price list is updated, click **Import price** to input the unit price to the system.
  - If the device price list is not updated, clicking **Go to set** directs you to **Settings > Device price**, where you can click **Add device** to update the price.

To add a new device, click **Add device**.



Subsidy Type	Description
--------------	-------------

- b. Set the **Subsidy proportion**.
- c. Set the **Max. subsidy**.

--End


### 4.2.8 Generate Report

After completing the above settings, go to the **Generate report** page.

The report includes the following information:

- General information, Data overview, and Device list

**General Information**



Name: Example of iSolarDesign *[Copy]*

Client: --

Designer: Vector

Project address: Via Roccon, 25, 06024 Casena PC, 01101

Scenario: C&I

Design time: 2025-12-01 20:24:18

---

**Data overview**

<b>100.00</b> kVA <small>Total AC power</small>	<b>1.38</b> <small>DC/AC ratio</small>	<b>212</b> <small>PV module</small>	<b>137.80</b> kWp <small>Total DC power</small>	<b>157.34</b> MWh <small>Annual yield</small>	<b>13.11</b> MWh <small>Monthly yield</small>
----------------------------------------------------	-------------------------------------------	----------------------------------------	----------------------------------------------------	--------------------------------------------------	--------------------------------------------------

---

**Device list**

Type	Manufacturer	Model/Specification	Quantity
Residential and string inverters	SUNGROW	SH20T	5
Battery	SUNGROW	5BH350	10
Power distribution box	--	--	1
Cable length (AC side)	--	4mm² Copper	20.5(m)
Cable length (DC side)	--	4mm² Copper	449.7(m)
PV module	Jinko Solar Holding Co., Ltd.	Tiger Neo 78HL4-BDV 625-650W_650	212

- Revenue forecast

**Revenue forecast**

---


**Investment return overview**

<b>718,233.46</b> EUR <small>Cumulative net profit in 25</small>	<b>165,367.00</b> EUR <small>Initial investment cost</small>	<b>165,367.00</b> EUR <small>EUR Equity</small>	<b>103,350.00</b> EUR <small>Maintenance cost</small>	<b>4,388,852.68</b> EUR <small>Net present value (NPV)</small>	<b>0</b> % <small>IRR</small>	<b>48</b> Months <small>Payback period</small>	<b>0.12</b> EUR/kWh <small>LCOE</small>
---------------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------	----------------------------------------------------------	-------------------------------------------------------------------	----------------------------------	---------------------------------------------------	--------------------------------------------

---

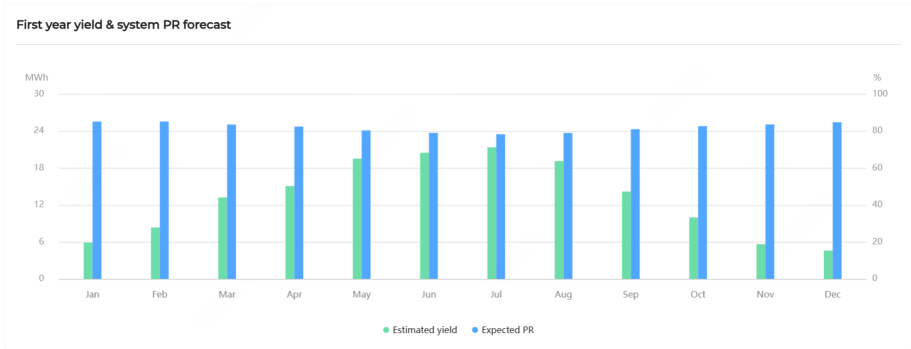
**261** Day  
ESS working days

Units(EUR)



■ Net loss    ■ Net profit

- First year yield & system PR forecast



- Tariff analysis and forecast

#### Tariff analysis and forecast

##### Annual electricity bill

49,670.38 EUR

Total electricity cost savings of the first year

Units(EUR)

600,000

500,000

400,000

300,000

200,000

100,000

0

Before PV&ES installation

Note: Before PV&ES installation VS After PV&ES installation

Annual total electricity savings

0 VS 49,670.38 EUR

Annual electricity cost

545,256.54 VS 495,823.50 EUR

Annual demand cost

13,528.60 VS 13,291.26 EUR

After PV&ES installation

Electricity fee before PV & ESS installation Demand fee before PV & ESS installation Energy fee after PV & ESS installation Demand fee after PV & ESS installation

##### Monthly electricity cost

4,139.20 EUR

Average monthly electricity cost savings of the first year

Units(EUR)

70,000

60,000

50,000

40,000

30,000

20,000

10,000

0

Jan

Feb

Mar

Apr

May

Jun

Jul

Aug

Sep

Oct

Nov

Dec

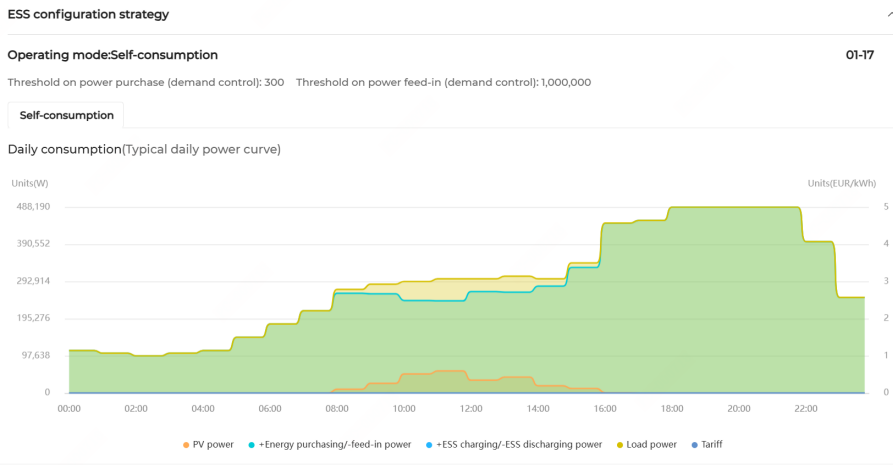
Electricity fee before PV & ESS installation Demand fee before PV & ESS installation Energy fee after PV & ESS installation Demand fee after PV & ESS installation

- Loss prediction

Loss prediction



- ESS configuration strategy (for C&I projects)



- Module layout

Module layout

Overview 屋顶1 屋顶2

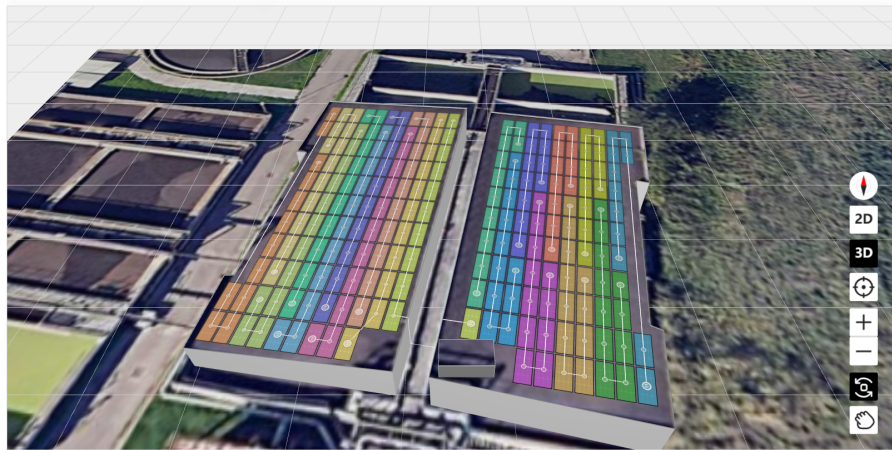


PV layout

- Electrical wiring

Electrical wiring

Overview 屋顶1 屋顶2



Electrical wiring diagram


Inverter	MPPT	String	Number of modules	Max. ISC	Min. Vdc	Max. Vdc	Max. Voc
No. 1 SH20T 2 * SBH350	MPPT1	PV1	12	14.38	505.59	629.68	742.28
	MPPT2	PV3	12	14.38	505.59	629.68	742.28
	MPPT3	PV5	12	14.38	505.59	629.68	742.28
No. 2 SH20T 2 * SBH350	MPPT1	PV1	11	14.38	463.45	577.2	680.42
		PV2	11	14.38	463.45	577.2	680.42
	MPPT2	PV3	11	14.38	463.45	577.2	680.42
No. 3 SH20T 2 * SBH350	MPPT1	PV1	11	14.38	463.45	577.2	680.42
		PV2	11	14.38	463.45	577.2	680.42
	MPPT2	PV3	11	14.38	463.45	577.2	680.42
No. 4 SH20T 2 * SBH350	MPPT1	PV5	11	14.38	463.45	577.2	680.42
		PV1	11	14.38	463.45	577.2	680.42
	MPPT2	PV2	11	14.38	463.45	577.2	680.42
No. 5 SH20T -	MPPT3	PV3	11	14.38	463.45	577.2	680.42
		PV5	11	14.38	463.45	577.2	680.42
	MPPT1	PV1	11	14.38	463.45	577.2	680.42
	PV2	11	14.38	463.45	577.2	680.42	
	MPPT2	PV3	11	14.38	463.45	577.2	680.42

PV subarray parameters


Name	Mounting type	Quantity of modules	DC power(kW)	Angle[°]	
PV array 1	Flush mount	100	65.00	Roof tilt	Roof orientation
				0	0
PV array 2	Flush mount	112	72.80	Roof tilt	Roof orientation
				3.43	167.07

Social contribution


Social contribution



**156.87** ton  
CO<sub>2</sub> reduction



**63.57** ton  
Standard coal saved



**8.50** k trees  
Equivalent trees planted

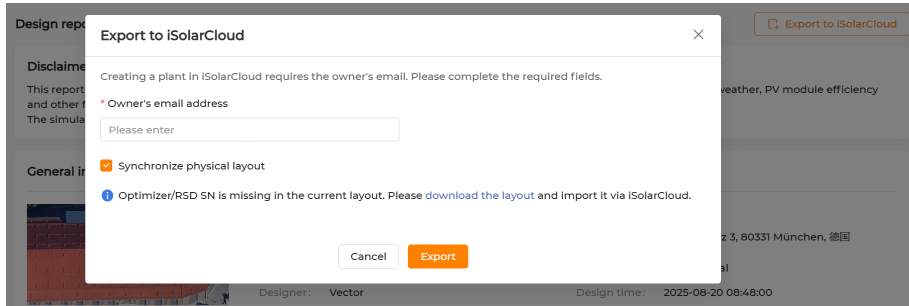
This page supports the following functions:

- Customize report content: Click the **Custom** icon in the upper left corner to select the information you want.
- Save and download: Click **Save and download** to save the report locally.
- Export to iSolarCloud: If optimizers/RSDs are configured in the project, you can export the project information and physical layout to iSolarCloud.
- Plan comparison: Click **Plan comparison** in the upper right corner to flexibly compare key indicators between the default plan with another one, which helps you to make informed decisions.
- Share report: Click **Share report** in the upper right corner to send the report and layout file via email by entering the recipient name and email.

### 4.2.8.1 Export to iSolarCloud

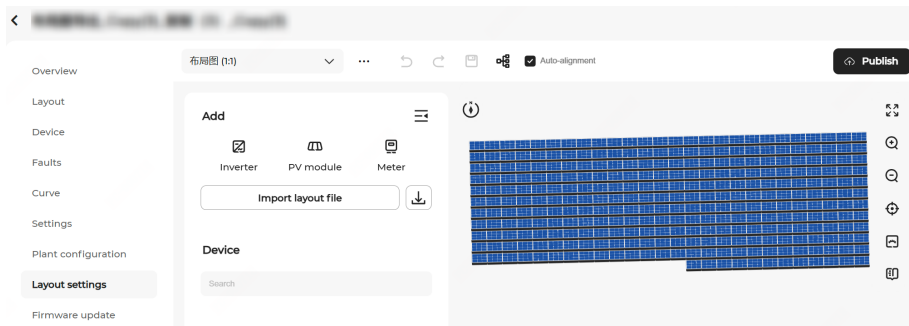
This section describes how to export the project information and physical layout to iSolarCloud in scenarios with optimizers/RSDs.

- Step 1** Click **Export to iSolarCloud** in the upper right corner, enter the **Owner's email address**, and select **Synchronize physical layout** as needed. Then click **Export**.

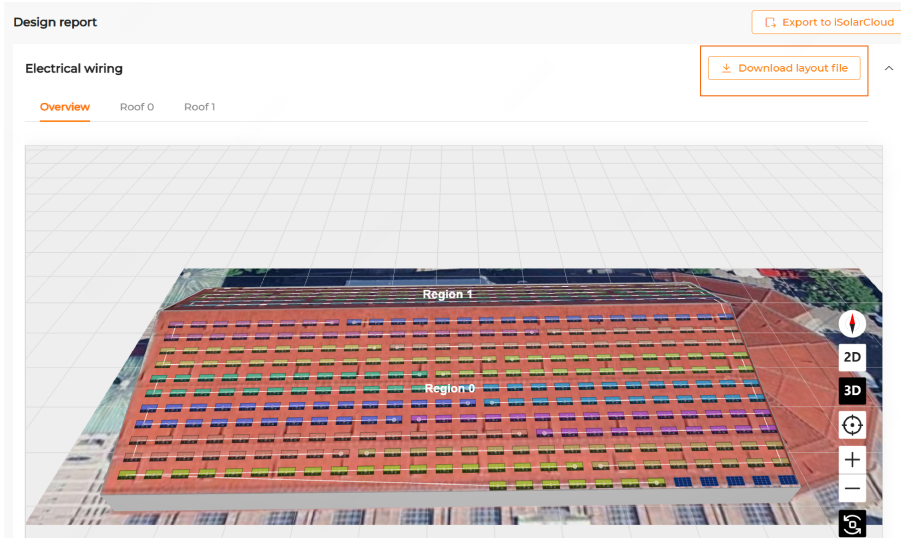


Project information and physical layout can only be exported once.

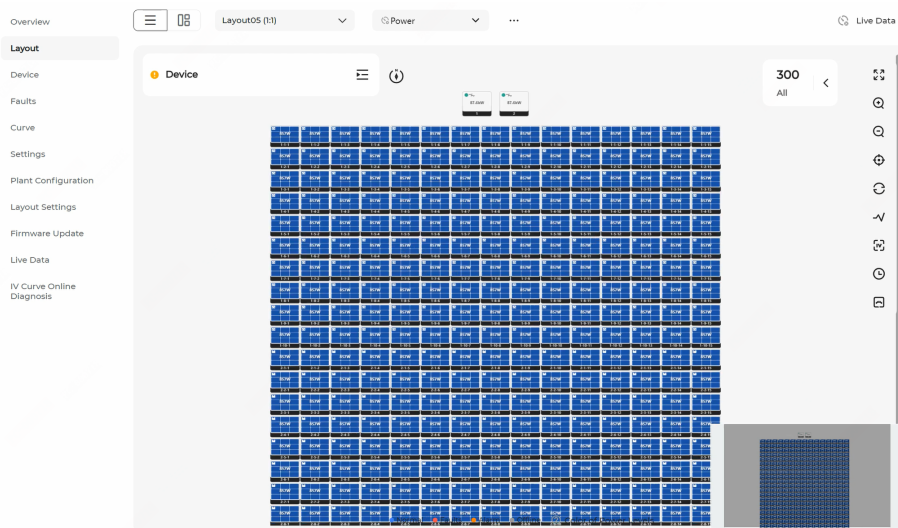
- Step 2** In iSolarCloud, you can view the imported general information and physical layout of the plant. (Note that optimizer/RSD short codes are not shown in the modules of the layout.)



- Step 3** On the **Design report** page of iSolarDesign, click **Download layout file** to download the layout file with optimizer/RSD short codes (in Excel format).



**Step 4** After entering the device S/Ns in the Excel file, import the layout file into iSolarCloud. The system will generate a physical layout with optimizer/RSD short codes, as shown in the following figure. For details, see *iSolarCloud User Manual*.



In addition to the above method, you can also import the information of a **Completed** project from iSolarDesign directly when creating a plant in iSolarCloud. For details, see *iSolarCloud User Manual*.

< Create plant

**Create plant**

\* Plant type  
Residential PV

01 Plant information — 
 02 Add communication device — 
 03 Tariff

**Basic plant information** Import plant from iSolarDesign >

\* Plant name \* PV installed power(KWp)  
Please enter Please enter

\* Detailed address \* Country/Region  
Please select Country/Region

\* Time zone \* Grid connection type  
Please select Please select

\* Grid connection date Postal code  
Please select Please enter

Plant image  
+  
Upload

**Owner information** Assign an owner to the plant. You can use an email address that is new or already registered with iSolarCloud.

\* Owner's email address  
Please enter

I have obtained authorization from the owner to grant access to channel/partner services for the current plant.  
Any third-party personal data submitted here must be authorized by the corresponding owner.

Assign an owner to the plant. You can use an email address that is new or already registered with iSolarCloud. Once the plant is successfully created, the system will automatically create an account for the plant owner and send it to both the owner and you via email. If the owner does not receive the system email, please forward it to them.

**Other information**  
. . . . .

Next

**Import plant from iSolarDesign** Please select a completed project in iSolarDesign to import plant information ✕

Project name Search

Project name	Update time	Address
<input type="radio"/> <span style="font-size: 0.8em;">[Project Name]</span>	2025-08-12 18:03:45	[Address]
<input type="radio"/> <span style="font-size: 0.8em;">[Project Name]</span>	2025-08-08 13:28:38	[Address]

Total 2 20/page < 1 > Go to 1

Cancel
Confirm

--End

### 4.3 PV & ESS Optimization

After logging in to the iSolarDesign system, click **Create project** in the upper right corner of the page and select **C&I > PV & ESS optimization**.

The process of standard design and report generation is shown below:

Process	Description
General information	Fill in the general information of the project. See <a href="#">4.3.1 General Information</a> for details.
Tariff and load	Set tariffs and load information. See <a href="#">4.3.2 Tariff and Load</a> for details.
Planning settings	Configure the settings of the PV system and ESS. See <a href="#">4.3.3 Planning Settings</a> for details.
Economic analysis	Provide the project cost to evaluate the possible cost of plant design. See <a href="#">4.3.4 Economic Analysis</a> for details.
Report generation	View the key information about the project, for example, data overview, device list, yield, and revenue forecast. The report can be downloaded and saved locally. See <a href="#">4.3.5 Report Generation</a> for details.

### 4.3.1 General Information

**General information**

\* Project name

\* Project address \* Latitude[°] \* Longitude[°]

\* Project lifespan (year) ⓘ  
 12 years  25 years  Custom

---

**Ambient temperature**

\* Min.[°C] \* Max.[°C]

Bifacial module gain factor ⓘ \* Ground albedo ⓘ

---

**Grid information**

\* ESS input voltage

\* Power factor ⓘ  Feed-in power limit(kW)

**Step 1** Enter **General information**: Input the **Project name** and select the **Project address** and **Project lifespan**.

**Step 2** Enter **Grid information**: Select **ESS input voltage**.

**Step 3** Upon completion, click **Next**.

--End

### 4.3.2 Tariff and Load

**Step 1** Enter the feed-in tariff.

**Step 2** Fill in the power purchase tariff. Refer to [4.2.3.1 Tariff Setting](#) for setting up **Power purchase tariff**.

**Step 3** Configure the load settings. Refer to [4.2.3.2 Load Settings](#) for how-to details.

--End

### 4.3.3 Planning Settings

**Step 1** Set up for the PV system (applicable to the PV-ES scenarios). Switch on the button **Enable PV** to set **PV** to **New installation** or **Existing PV & ESS configuration**.

PV system settings

Enable PV

\* PV  
New installation

---

PV modules

\* Cell type  
 System module  Customize module

\* Manufacturer  
Jinko Solar Holding Co., Ltd.

\* Model  
Tiger Neo 78HL4-BDV 625-650W\_650

\* Modules  
1000

\* PV capacity(kWp)  
650

\* Azimuth angle(°)  
0

\* Angle of inclinat...  
29

---

Inverter settings

\* Target DC/AC ratio  
1.2

When **New installation** is selected for PV,

- a. Complete the settings for PV modules and DC/AC ratio.
- b. When designing a plan, you can select a system-recommended plan or customize one.
  - Click **Start design**. The system will generate an optimal plan, and you can modify the parameters directly. To revise the plan, click **Edit plan**.

**Design plan**

[Start design](#)

DC/AC ratio: 1.3/1.2    Inverters: 4pcs    Modules: 1000/7000pcs

[Clear configuration](#)    [Edit plan](#)    [Customize](#)

SC150CX × 2    Actual ratio:1.39

MPPT1 41.13A

PV1		PV2		PV3			
Modules(14~16)	Power(kW)	Modules(14~16)	Power(kW)	Modules(14~16)	Power(kW)		
16	10.4	16	10.4	16	10.4		
Max. Isc/Imp	Min. Vdc	Max. Vdc	Max. Vdc	Max. Isc/Imp	Min. Vdc	Max. Vdc	Max. Vdc
14.38A	675.64V	877.84V	967.38V	14.38A	675.64V	877.84V	967.38V

MPPT2 41.13A

MPPT3 41.13A

MPPT4 41.13A

- Click **Customize** to design a custom plan based on actual inventory or your preferences.

When **Existing PV & ESS configuration** is selected for PV,

**a. Define PV capacity.**

**b. Set Load data type to Total load or Net load.**

- Total load: Total electricity consumption of all electric appliances.
- Net load: Total load minus energy yield of the existing PV systems, usually obtained from the gateway meter.

## Step 2 Set up for ESS.

**ESS settings**

\* ESS capacity planning method (liquid-cool...)

Recommended ESS capacity

---

**ESS operation strategy**

Self-consumption     Self-consumption+Time-of-use power

\* Threshold on power purchase (demand ...)

623.6

\* Planning target

Shortest payback period

---

**Advanced settings**

ESS settings

Charge cut-off SOC: 98%    Discharge cut-off SOC: 3%    Round-trip efficiency (RTE): System default    [Edit](#)

SOH degradation

Degradation type: System default    [Edit](#)

**a. Select an option in the drop-down list ESS capacity planning method (liquid-cooled ESS cabinet).**

If you select the **Specified ESS capacity** method, click **Add device** on the right to select the ESS model and quantity.

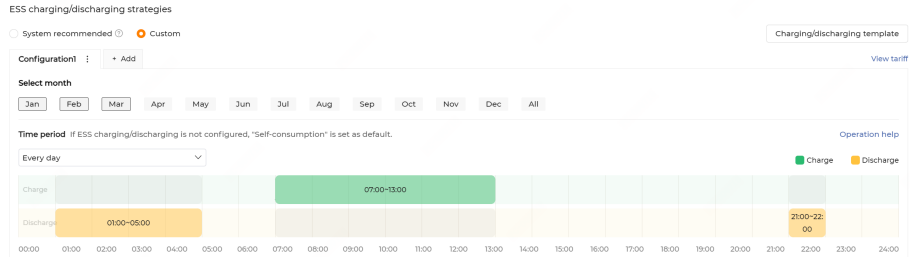
**b. Set up the ESS operation strategy, which includes Self-consumption and Self-consumption+Time-of-use power. Define Threshold on power purchase (demand control) and Planning target.**



In the case of **Self-consumption+Time-of-use power**, set **ESS charging/discharging strategies** to **System recommended** or **Custom**.

- System recommended: The system intelligently matches charging and discharging settings based on the predefined time-of-use tariffs.

- Custom: You can leverage the **View tariff** function on the upper right corner of the table to customize the charging and discharging time plans for each month. If the time slots are not defined with the charging or discharging strategies, the self-consumption mode will be applied in those slots.



1. Select the months for settings.
2. In the **Time period** dropdown list, set the time plans for **Every day** or **Working days & non-working days**.
3. To add a time plan, click on a vacant time slot in the time period. To modify the duration of an existing time plan, drag and drop it to the left or right.



Click the button **Charging/discharging template** on the right side of the page to set up or import a pre-configured template.

- c. In the **Advanced settings** section, some parameters are pre-configured. Click the **Edit** button on the right to modify ESS settings and SOH degradation types.

**Step 3** Upon completion, click **Next**.

--End

### 4.3.4 Economic Analysis

Not setting a tariff will affect revenue calculation. Currency: EUR; Discount rate 0 % [Settings](#)

**Initial installation cost**

\* PV system cost(EUR/W)     \* ESS cost(EUR/Wh)     \* ESS replacement supported

---

**O&M cost**

\* PV O&M cost(EUR/W)     \* ES O&M cost(EUR/Wh)

---

**Loan settings**

Enable loan

\* Loan-to-cost ratio(%)     \* Loan cap(EUR)     \* Annual loan interest rate(%)     \* Loan term(Year)

**Step 1** Enter the initial installation costs.

**Step 2** Enter the O&M costs.

**Step 3** If there is a loan in the project, switch on the **Enable loan** option and define the relevant data.

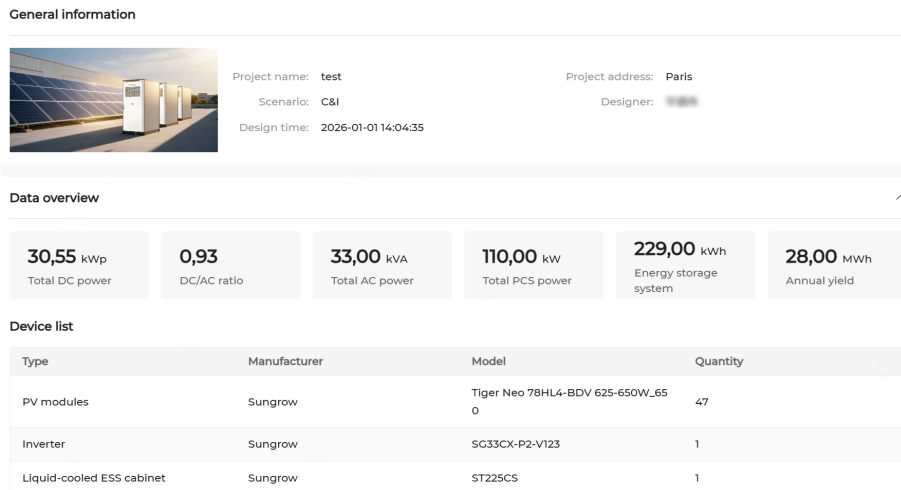
--End

### 4.3.5 Report Generation

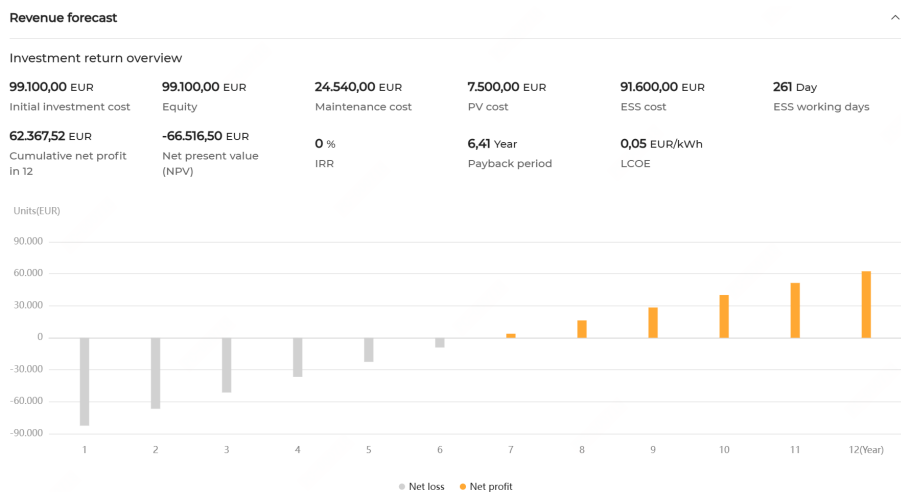
After completing the settings above, go to the **Generate report** page for key information.

The report includes:

- General information, data overview (including device list)

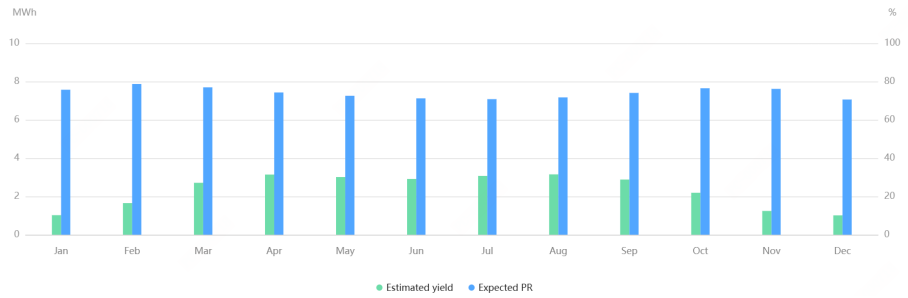


- Revenue forecast



- First-year yield and system PR forecast

First year yield & system PR forecast



• Tariff analysis

Tariff analysis and forecast

Annual electricity bill

19.662,53 EUR

Total electricity cost savings of the first year

Annual total electricity savings

0 VS 19.662,53 EUR

Note: Before PV&ES installation VS After PV&ES installation

Annual electricity cost

84.000,00 VS 64.580,50 EUR

Annual demand cost

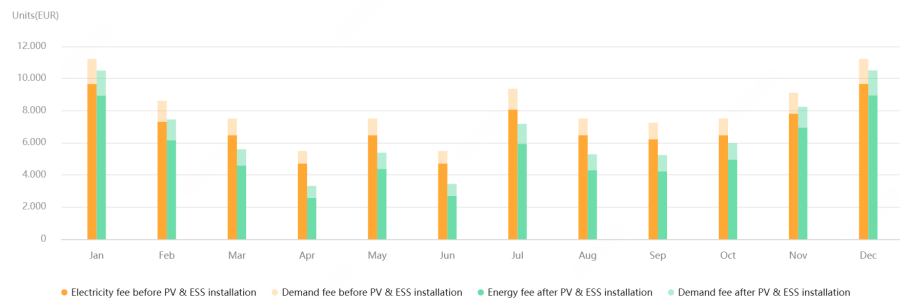
13.816,47 VS 13.573,44 EUR



Monthly electricity cost

1.638,54 EUR

Average monthly electricity cost savings of the first year

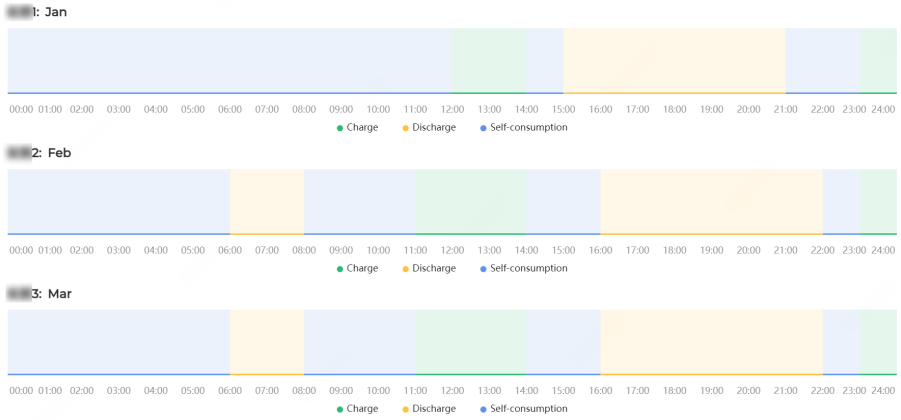


• ESS charging/discharging strategy



If defined in **Planning settings**, the ESS charging and discharging strategies are displayed in the report.

ESS charging/discharging strategies



Power curve

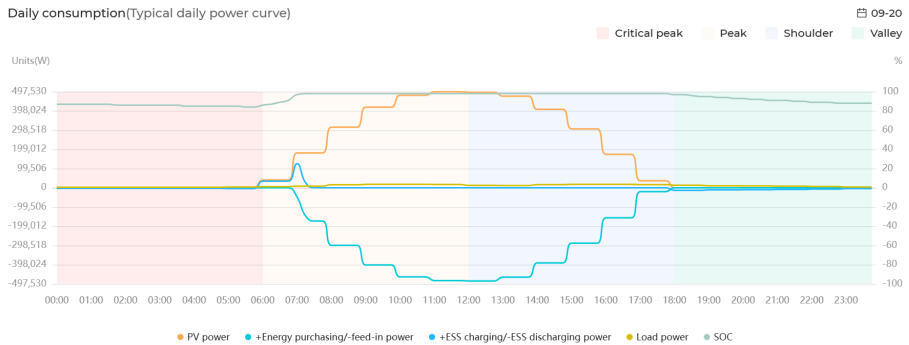
Power curve

Operating mode: Self-consumption + Time-of-use power

Threshold on power purchase (demand control): 46.4247 kW Threshold on power feed-in (demand control): 1,000,000 kW

Self-consumption Self-consumption + Time-of-use power

Daily consumption (Typical daily power curve)






ESS value

ESS value



PowerStack liquid-cooled C&I energy storage system 255CS series

ST255CS-2H

 <b>Lower cost</b>	 Efficient and flexible	 Safe and reliable
----------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------

- Fully integrated system design with pre-installation and pre-commissioning, to reduce commissioning work on site
- Innovative AI bionic thermal balance, 33 % reduction in all-day system heat loss
- Balanced heat dissipation by liquid cooling, ensuring service life up to 12 years

## 5 Settings

Log in to iSolarDesign and click **Settings** at the top of the page to manage **Modules**, **Device price**, and **Tariff template**. These settings can be directly applied when creating a project, reducing the need for repeated configuration.

### 5.1 Custom Module


You can add a custom module if a module beyond those provided in the system is required.

Log in to the iSolarDesign system, and click **Settings** at the top of the screen to go to the **Customize Module** page.

- Add one custom module


Click **Add Module**, set the parameters for the module, and click **Confirm**. The module will then be added.

Add Module		X	
* Manufacturer	Please Enter	* Series Name	Please Enter
* Module Model	Please Enter	* Maximum Power[Wp]	Please Enter
* Voltage Temperature Coeff. (%/°C)	Please Enter	* Open Circuit Voltage [V]	Please Enter
* Permissible System Voltage [V]	Please Enter	* Short Circuit Current [A]	Please Enter
* Mpp Voltage [V]	Please Enter	* Current Temperature Coeff. (%/°C)	Please Enter
* Mpp Current [A]	Please Enter	* Power Temperature Coeff. (%/°C)	Please Enter
* Width(mm)	Please Enter	* Work Temperature Range (°C)	Please Enter
* Length(mm)	Please Enter	* High(mm)	Please Enter
* Weight (kg)	Please Enter	Update Time	


- Add custom modules in group
  1. Click **Download Template** to download the template file to your local system, and fill in the module information.
  2. Click **Import Template** to import the template that carries the module information. The modules will then be added.
- Delete one module  
Click  in the Action column to delete the corresponding module.
- Delete modules in group

Select modules of different models, and click **Batch Delete** to delete them in group.

- Edit module information

Click  in the Action column to edit the information about the corresponding module.

- View module information









Click  in the Action column to view the information about the corresponding module.

## 5.2 Device Price

After device prices are configured, they can be directly imported when you maintain the device list in economic analysis.

You can add, edit, view, copy, and delete devices.

Device price

Device name	Model/Specification	Country/region	Manufacturer	Retailer	Price	Currency	Update time	Action
Residential inverter	SH5.0RT-20	Spain			1,750	EUR	2025-11-30 19:53:35	   
battery	SBH350	Spain			3,000	EUR	2025-11-30 19:53:08	   

## 5.3 Tariff Template

After a tariff template is configured, it can be directly imported when you configure time-of-use tariffs.

You can copy, add, and delete tariff templates.


Tariff template

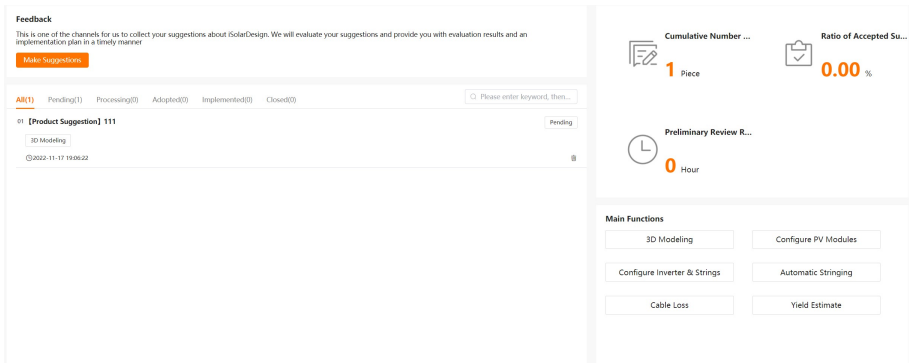
Italy Latest update: 2025/10/29	Italy Latest update: 2025/10/31	Spain Latest update: 2025/10/07	+ Add
------------------------------------	------------------------------------	------------------------------------	-------

Country: Italy Target project: --


To create a new tariff template, click **Add** and set the relevant parameters. For detailed instructions, see Method 1 for setting time-of-use tariffs in step 3 of [4.2.3.1 Tariff Setting](#).

# 6 Feedback

Users can submit suggestions on the **Feedback** interface. Click  to enter the corresponding interface. Users can only view their own suggestions on this interface.



## Add Feedback

Click  to enter the **Make Suggestions** interface, as shown in the following figure.

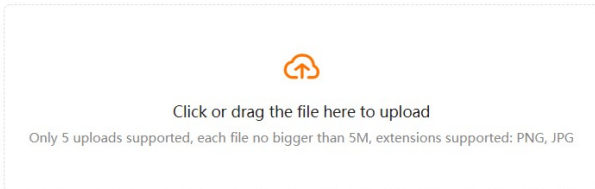
### Make Suggestions

\* Suggestio...  Product Suggestion  Functional Problem  Others

\* Functions...

\* Description

Attachment





Select **Suggestion Type**, **Functions Involved**, and enter **Description**. Uploading **Attachment** is optional. Click **Submit**.




At most 5 attachments can be uploaded, and each file should be no more than 5M. Only PNG and JPG files are supported.

## Feedback List




On this interface users can view the status and quantity of suggestions that have been submitted. The status includes **All**, **Pending**, **Processing**, **Adopted**, **Implemented**, and **Closed**.

Click  to delete the suggestion, while the administrator's reply will also be deleted.

## Feedback Details



Click one of the suggestions to go to the **Details** interface. On this interface users can view the **Suggestion Type**, **Functions Involved**, **Description**, and **Attachment**.

Click  to reply to the customer service.



If there is no reply text, the user cannot reply to the customer service.

# 7 Personal Setting

**Personal Setting** consists of three functions: **Basic Settings**, **Security Settings**, and **Data Settings**.

## Basic Settings

**Basic Settings**

Email

Company

City

Time Zone

Company Logo   
 [Click to upload pictures](#)   
 Only 1 upload supported, each file no bigger than 1M, extensions supported: PNG, JPG

Theme   
  Primary Color   
 [Reset Color](#)

First Name

Number

Country

Last Name

Street

Postal Code

On this interface users can modify the basic information of the account.

## Security Settings

**Security Settings**

**Email**   
 Changing your email also changes your login. [Change Your Email](#)

**Delete Account**   
 Click here to delete your account and all saved data from the server. This cannot be undone. [Delete Account](#)

**Password**   
 The Password Includes at Least 8 Characters [Modify Password](#)

On this interface users can modify the email address, delete the account and change the password.

## Data Settings

**Data Settings**

Temperature Unit

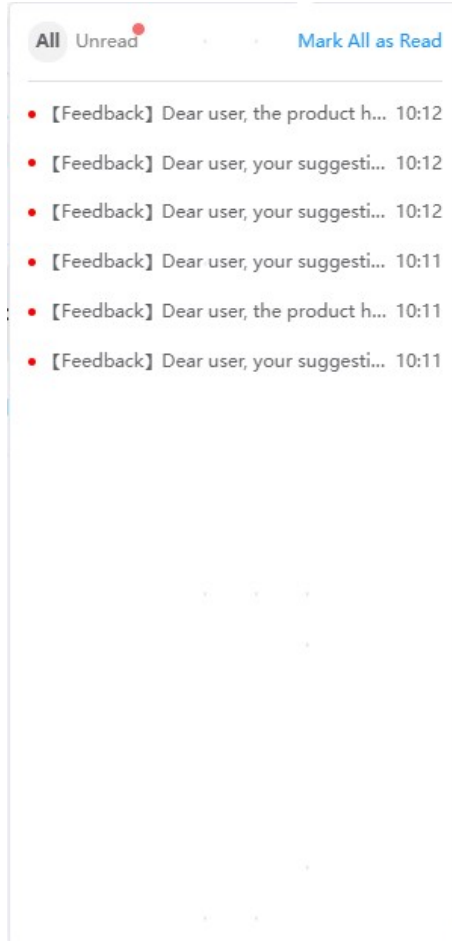
Unit of Length

Decimal Separator

Language

On this interface users can modify the **Temperature Unit**, **Decimal Separator**, **Unit of Length**, and **Language**. Click **Save**.

## 8 Messages



On this interface users can view system messages. The **All** tab is displayed by default. Users can click **Unread** to view unread messages.

Click **Mark All as Read** to change the status of all unread messages to read.

---

## 9 Contact Information

In case of questions about this product, please contact us.

For detailed contact information, please visit: <https://en.sungrowpower.com/contactUS>.

**SUNGROW**

Sungrow Power Supply Co., Ltd.

[www.sungrowpower.com](http://www.sungrowpower.com)