



Iasi, Sept 2022



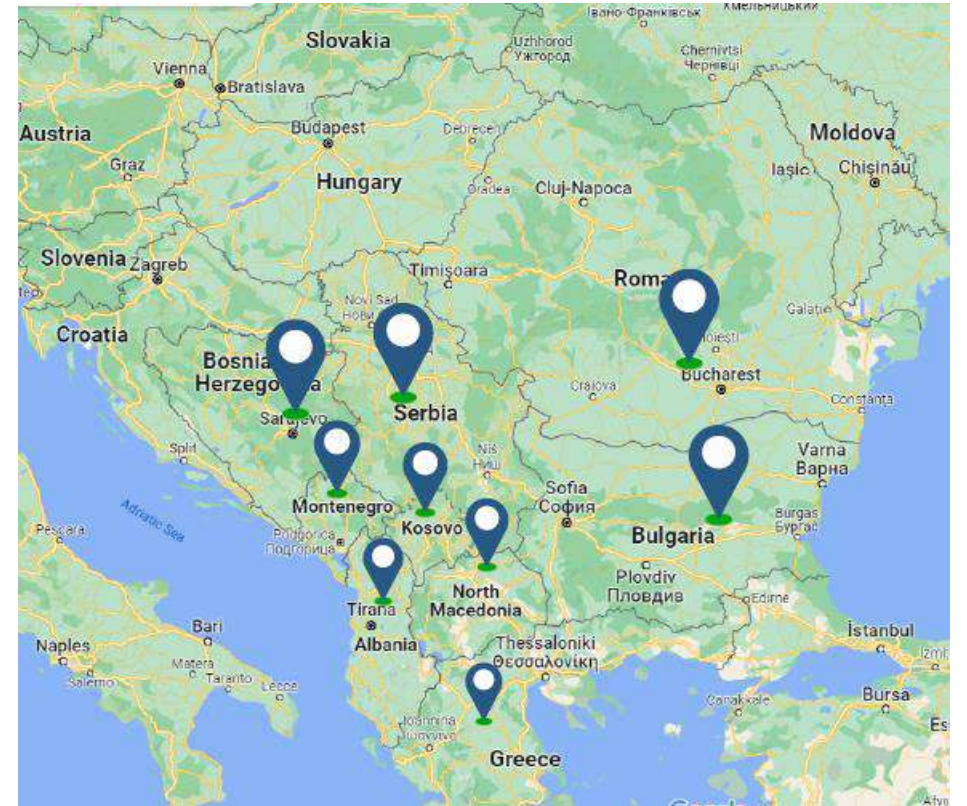
ENERGY. THE CLEVER WAY

Official Representative CLENERGY mounting systems for Balkans:

- Romania
- Bulgaria
- Macedonia
- Albania
- Montenegro
- Bosnia and Herzegovina
- Greece

Official distributor for Romania

- Risen PV modules
- Huawei inverters and batteries.





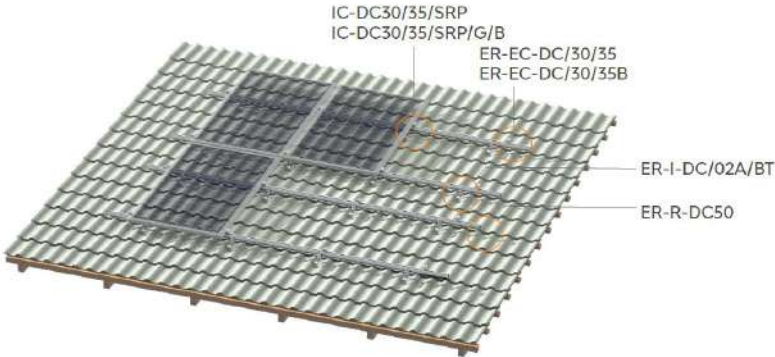
Highlights:

- Veteran manufacture solar raking field, founded 2007 Melbourne
- Strong reputation in APAC and world wide sold in 30 countries
- Listed on Shanghai stock exchange in 2017
- HQ Manufacturing: Xiamen China

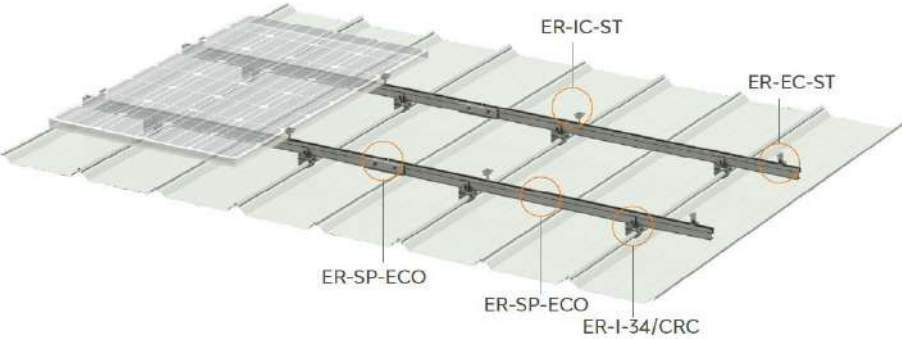
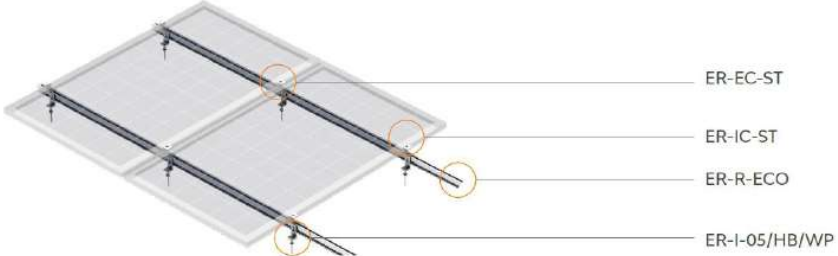
Key figures:

- 12GW of world wide installations
- Largest share of rooftops solar PV AU market for last 12 year, 610.000+ rooftop solar projects
- 100.000+ solar plants

Residential



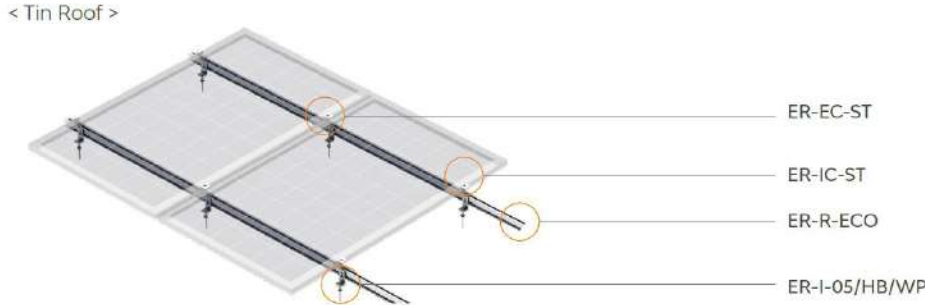
< Tin Roof >



Commercial

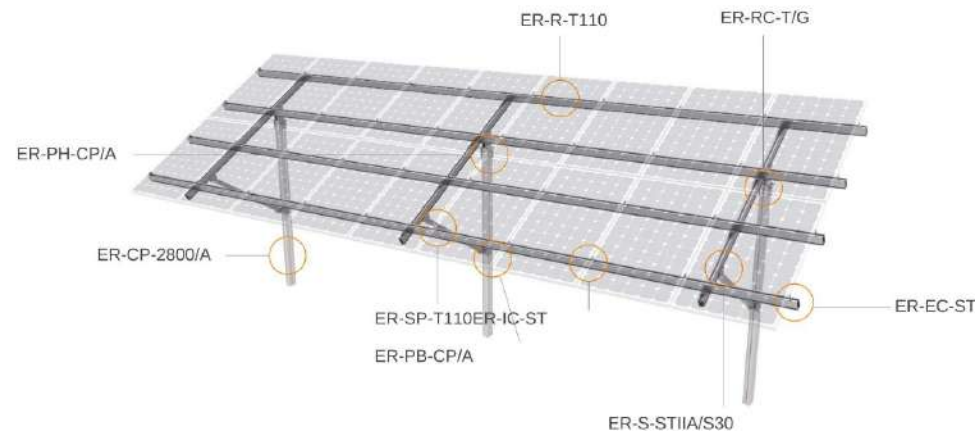


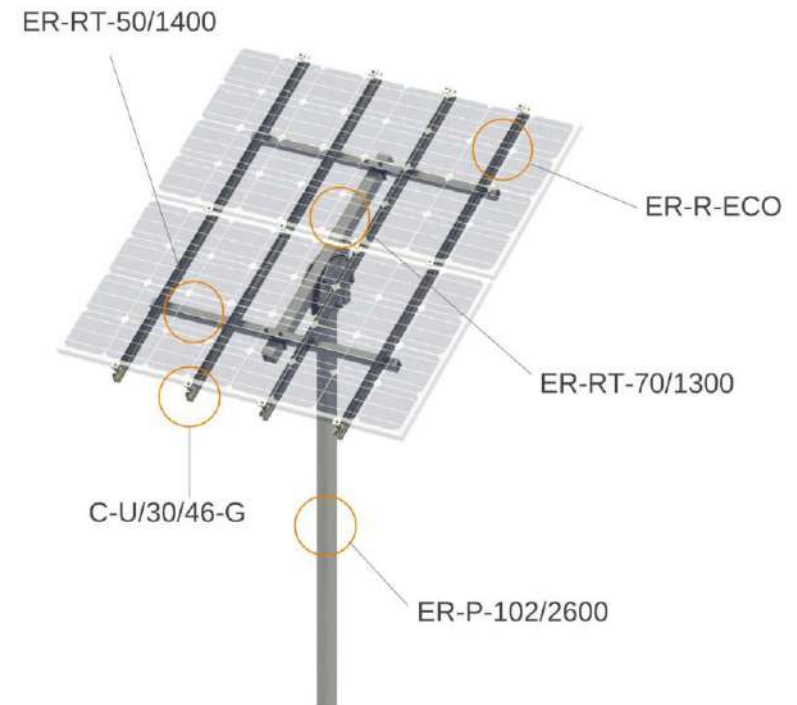
Roof tilt <5grd, ballasted solution





Utility Scale







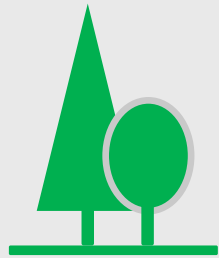
**DIGITAL
INTELLIGENT
SOLAR
TRACKER
SOLUTION**

Our goal

Digital Intelligent Solar Tracker helps build **Friendly Solar Plant**

Using high strength MAC steel

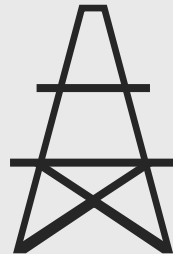
Reducing 30%
steel consumption



Environment Friendly

Stable

power generation
Improve power quality



Grid Friendly

Intelligent SCADA
maintenance platform

Guard solar plant
safety



System Friendly

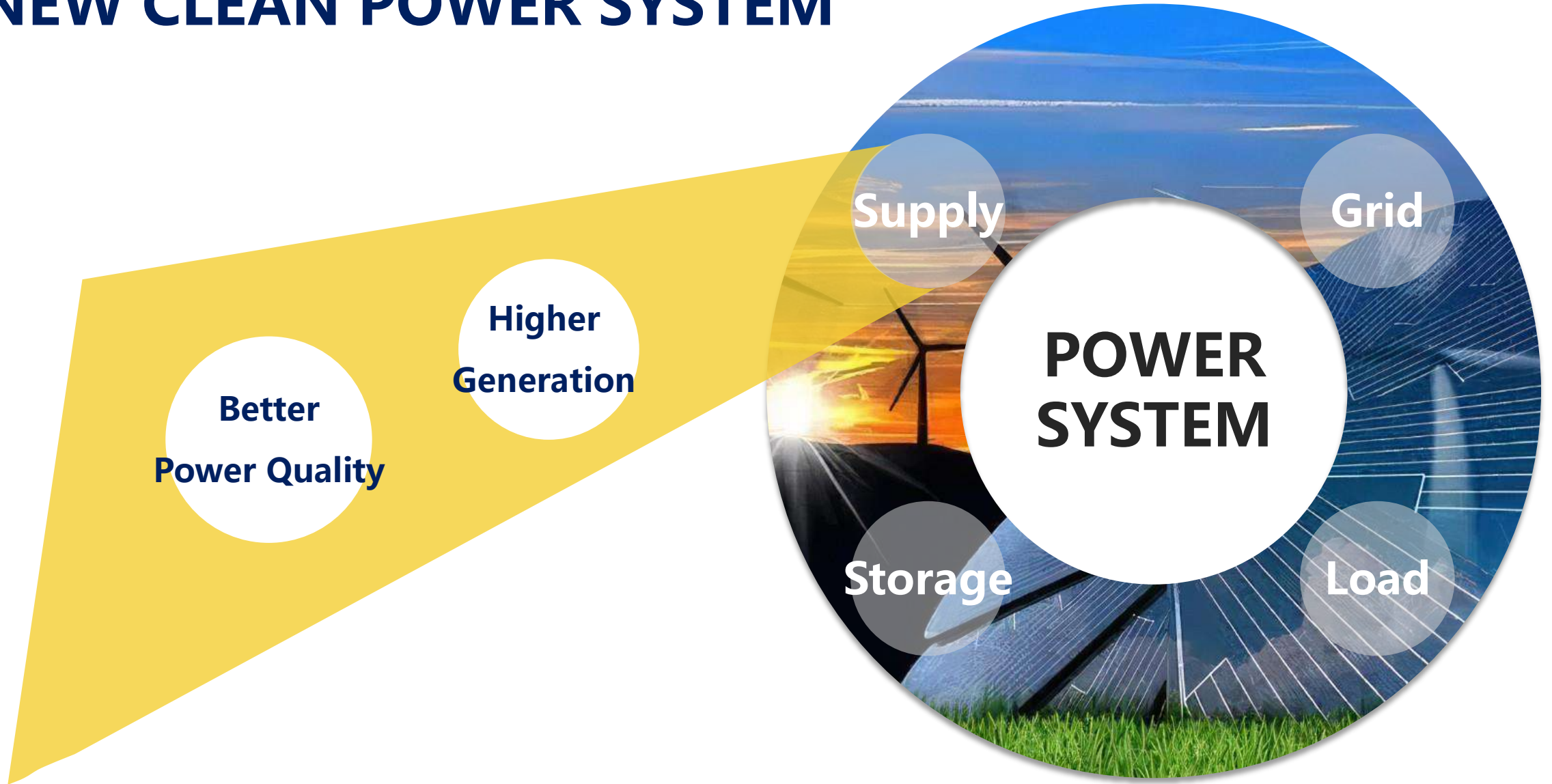
Investment
return

up to 11%



Revenue Friendly

NEW CLEAN POWER SYSTEM



CONTENT

- 1 Higher Power Generation Efficiency
- 2 Better Power Quality
- 3 Tracker Solution
- 4 Quick Installation & Commissioning
- 5 Project Case



1

Higher Power Generation Efficiency

1 Economic Analysis

	Fix Mounting (665Wp Bifical Panel)	Tracker System (665Wp Bifical Panel)	Comparasion
Configuration	✓ PV mounting system	<ul style="list-style-type: none"> ✓ PV mounting system ✓ Rotation drive system ✓ Intelligent tracking control system ✓ Microclimate monitoring and protection system ✓ Intelligent SCADA platform 	
PV Panel Tilt	East to west arrangement 40° Facing south	North South horizontal rotation axis Rotating ±45 ° from east to west every day	
Protection Mode	N/A	Real time monitoring the microclimate of the power station, and automatically enters protection mode. <ul style="list-style-type: none"> <li style="width: 50%;">✓ Wind protection <li style="width: 50%;">✓ Flood protection <li style="width: 50%;">✓ Heavy snow protection <li style="width: 50%;">✓ Heavy rain cleaning <li style="width: 50%;">✓ Hail protection 	
SCADA	N/A	Intelligent SCADA platform Real time monitoring of the operation status of all trackers. <ul style="list-style-type: none"> ✓ Automatic fault alarm ✓ Operation and maintenance reminder ✓ Remote monitoring 	
Design Life	25 years	25 years	
Annual Maximum Power Generation Hours	1579 h/year	1839 h/year	↑ 16%
Initial Total Investment	4.01 yuan/Wp	4.43 yuan/Wp	
Operating Costs	0.045 yuan/Wp	0.050 yuan/Wp	
KWh Cost	0.1390 yuan/Wp	0.1320 yuan/Wp	↓-5%
Feed in Tariff (Xinjiang.China)	0.268 yuan/kWh	0.268 yuan/kWh	
Cost Recovery Period	12.96 years	12.31 years	



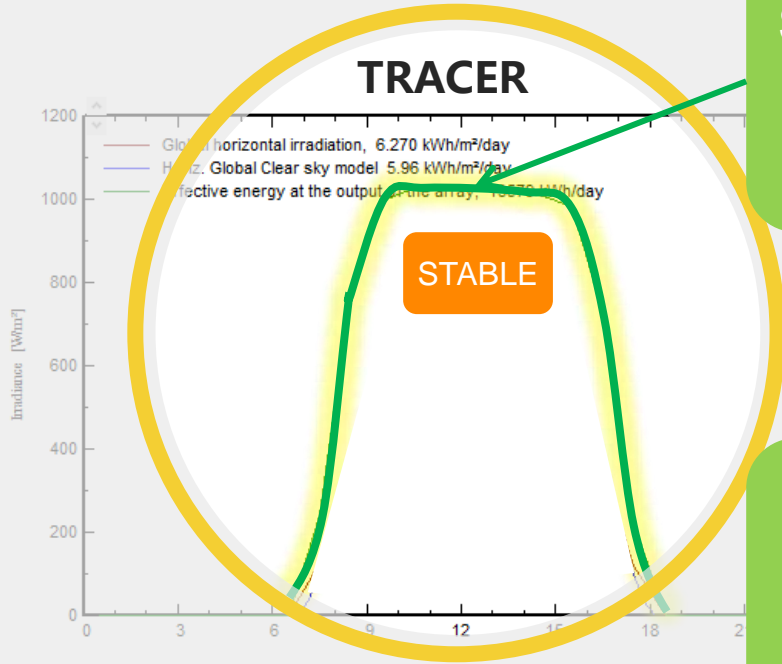
2

Better

Power Quality

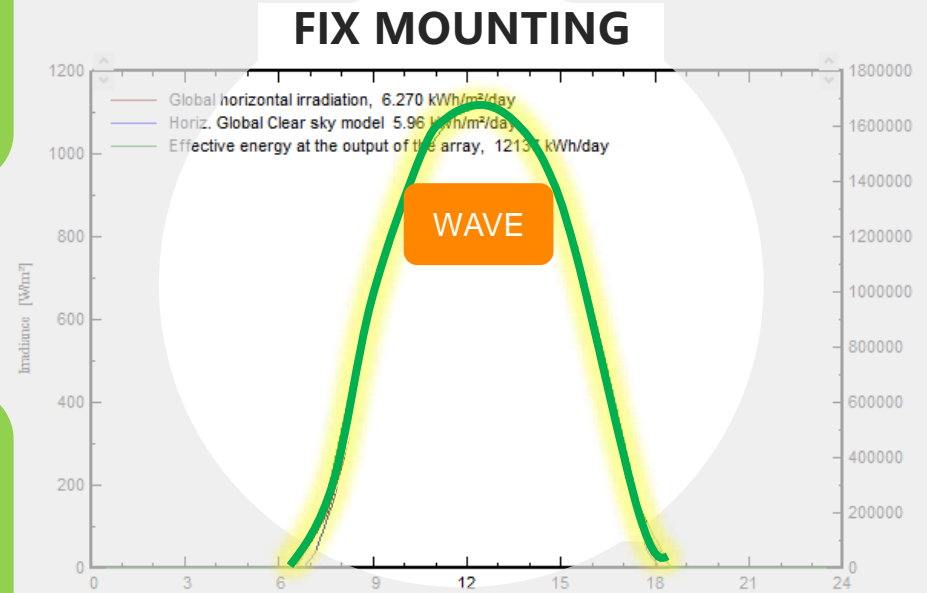
新疆石河子 293MW

2 Stable Daily Power Generation Curve



Stable daily power output between 9:00- 15:00

More friendly to power grid dispatching



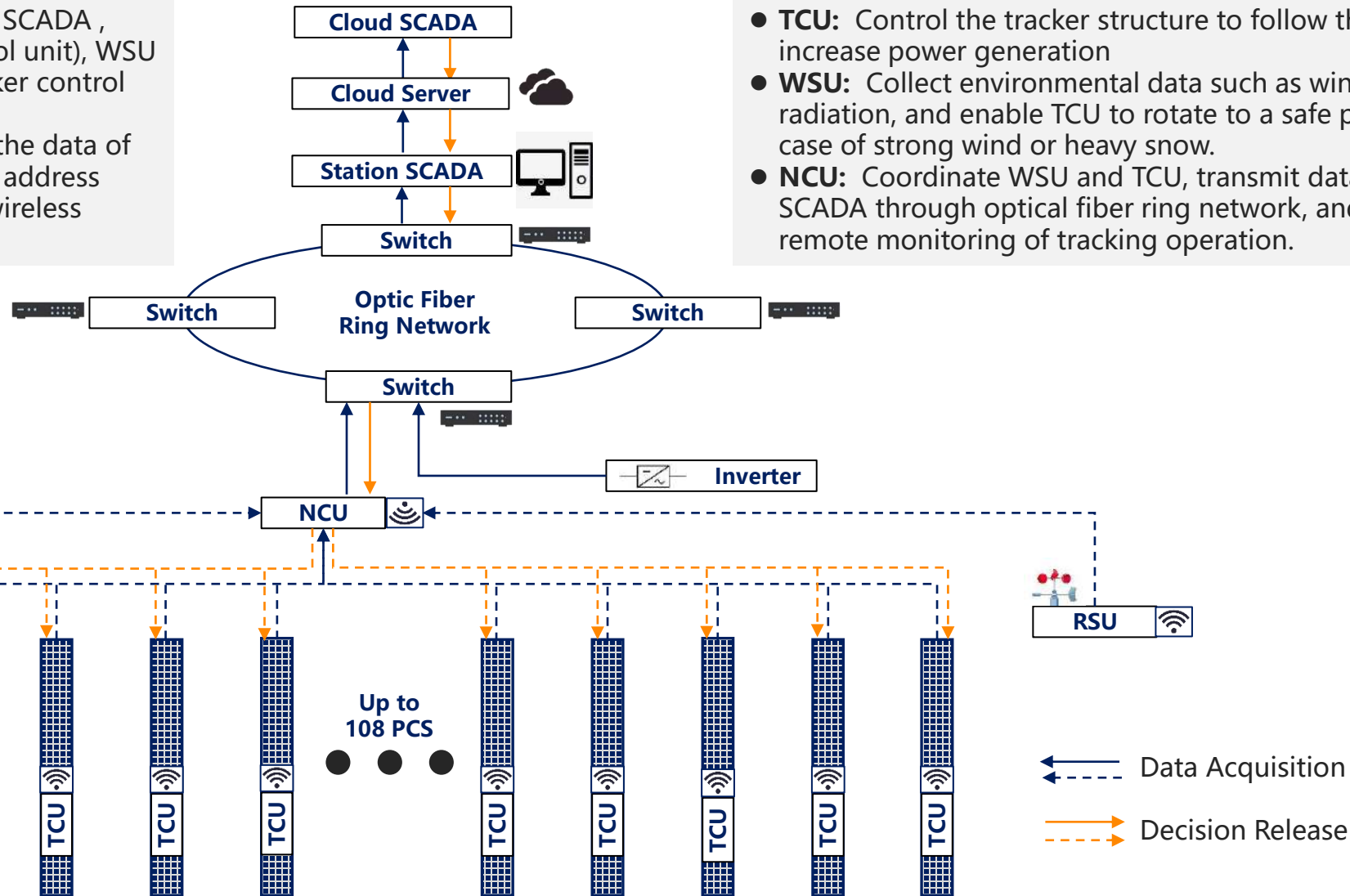


3

Tracker Solution

3.1 Tracker System Topology


The tracker system consists of cloud SCADA, station SCADA, NCU (network control unit), WSU (weather station unit) and TCU (tracker control unit). TCU and WSU can view and control the data of each tracker and configure the MAC address through Bluetooth, so as to realize wireless networking.



- **TCU:** Control the tracker structure to follow the sun to increase power generation
- **WSU:** Collect environmental data such as wind, snow and radiation, and enable TCU to rotate to a safe position in case of strong wind or heavy snow.
- **NCU:** Coordinate WSU and TCU, transmit data to the SCADA through optical fiber ring network, and realize remote monitoring of tracking operation.


3.2 Tracker System Function

Intelligence SCADA



- Centralized Control
- Status Overview
- Fault Alarm
- Zone Display
- Health Assessment
- Fault Location
- Hierarchical Control
- Life Warning
- O&M Plan Reminder

Microclimate monitoring system of solar plant




Wind Snow Irradiation

Intelligent tracking control system



Tracking Slope terrain Cloudy Wireless Self Power Night Stow Wind Stow Snow Tilt Rain Clean hail Tilt Flood Stow

Tracker mounting system



Maximum Wind resistance up to 45m/s

3.3 SCADA Intelligent Guardian



1 Tracker
Datifying

2 Data
Visualization

3 Station
Controllable

4 Station
Optimizable

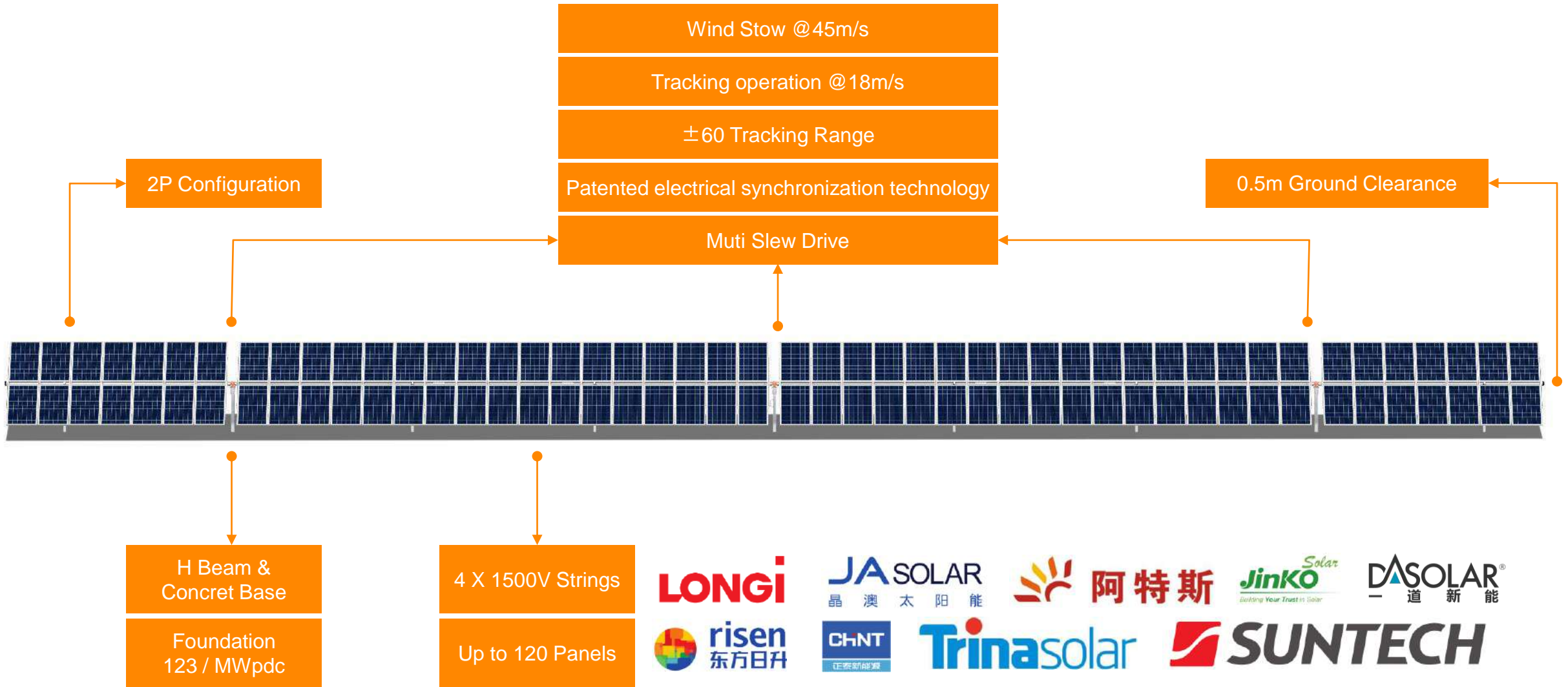
Further strengthen management on the basis of data visualization, achieve "predictable" management effect, provide data support for solar plant optimization and facilitate scientific decision-making

Remote control of each tracker unit to help realize intelligent operation and maintenance

On the basis of collected data, through comprehensive calculation, comparative analysis and other methods, the data can be more visualized from the perspective of management

Collect and display the operation conditions of all trackers in the form of data

3.4 Tracker Structural Specification

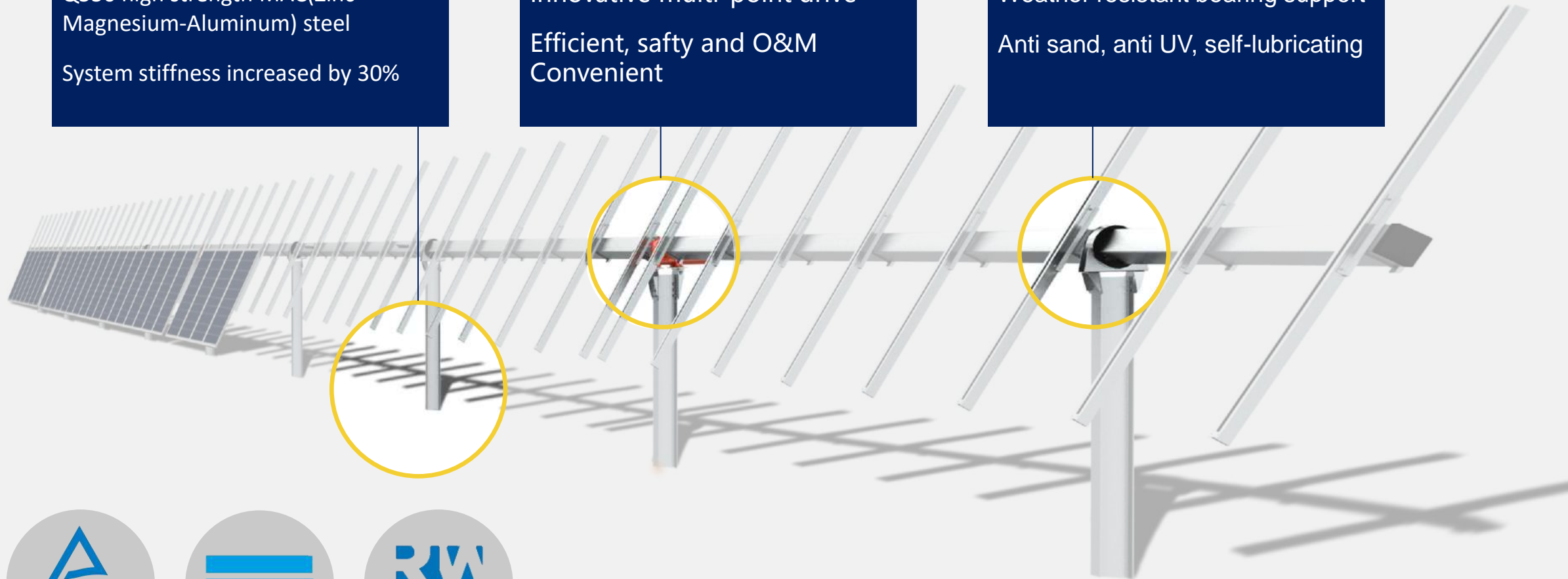


3.5 Safe and Stable Structure Design

Q550 high strength MAC(Zinc-Magnesium-Aluminum) steel
System stiffness increased by 30%

Innovative multi-point drive
Efficient, safty and O&M
Convenient

Weather resistant bearing support
Anti sand, anti UV, self-lubricating





4

Quick Installation & Commissioning

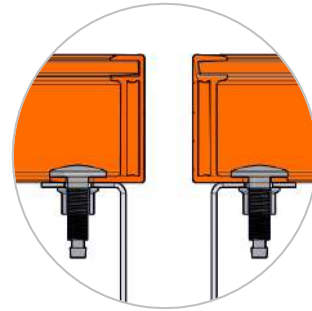
4.1 Rapid Solar Plant Building



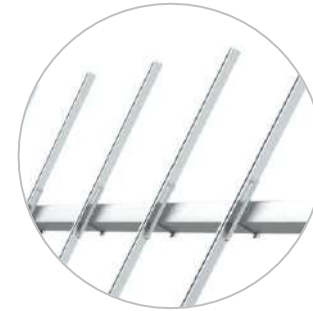
Drive installation
efficiency increased
by 50%



Wireless electrical
deployment



PV Panel Fastener
Anti loosening
Anti-theft
Self-grounding



Integrated PV panel
anchor purlin



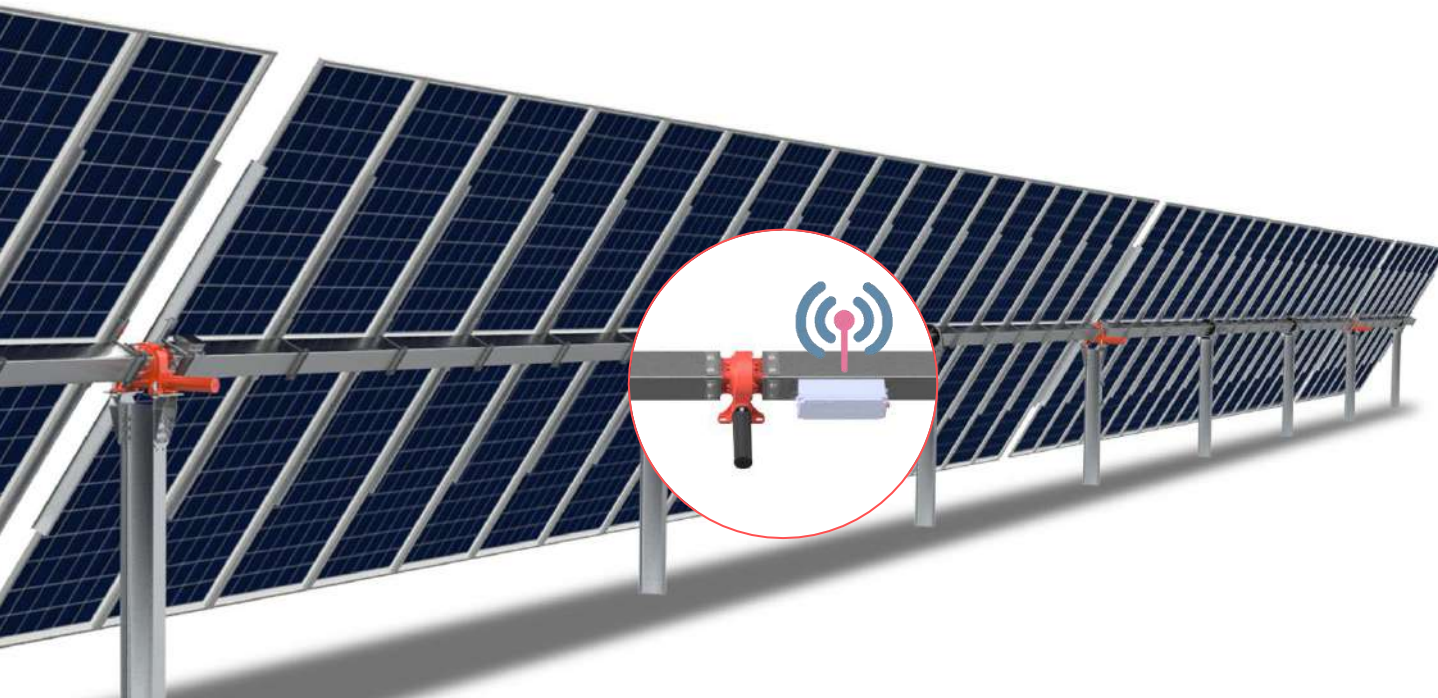
Only 123
Foundations
per MW



1DP: 1x90 PV 2DP: 2x45 PV

4.2 Quick System Commissioning

- ✓ One click scanning
- ✓ Multi tracker connection
- ✓ Only 3 steps for tracker commissioning



- Step1 - Searching TCU
- Step2 - Connecting
- Step3 - Enter address

5

Project Case



5 Project Case (part)

Tracker Market Share

Ranking **1st** in Southeast Asia



10% Slope Terrain
Vietnam — 35_{MW}



High Temperature and Humidity
Cambodia — 78_{MW}



High Flood Level
Myanmar — 113_{MW}



Windblown Sand, -30°C in winter
XinJiang.China — 300_{MW}



Finishing-Tracker
Jiangxi.China — 80_{MW}



Flat Land
Vietnam — 50_{MW}

6

Q & A





ENERGY.THE CLEVER WAY



sales@geminox.ro

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