



# PowerFit

Powerway Tracking System

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Excellent **Performance**

Using a Unique Parallel

**Multi-Point Synchronous Drive Unit**

Greatly Improving the Stability of the System

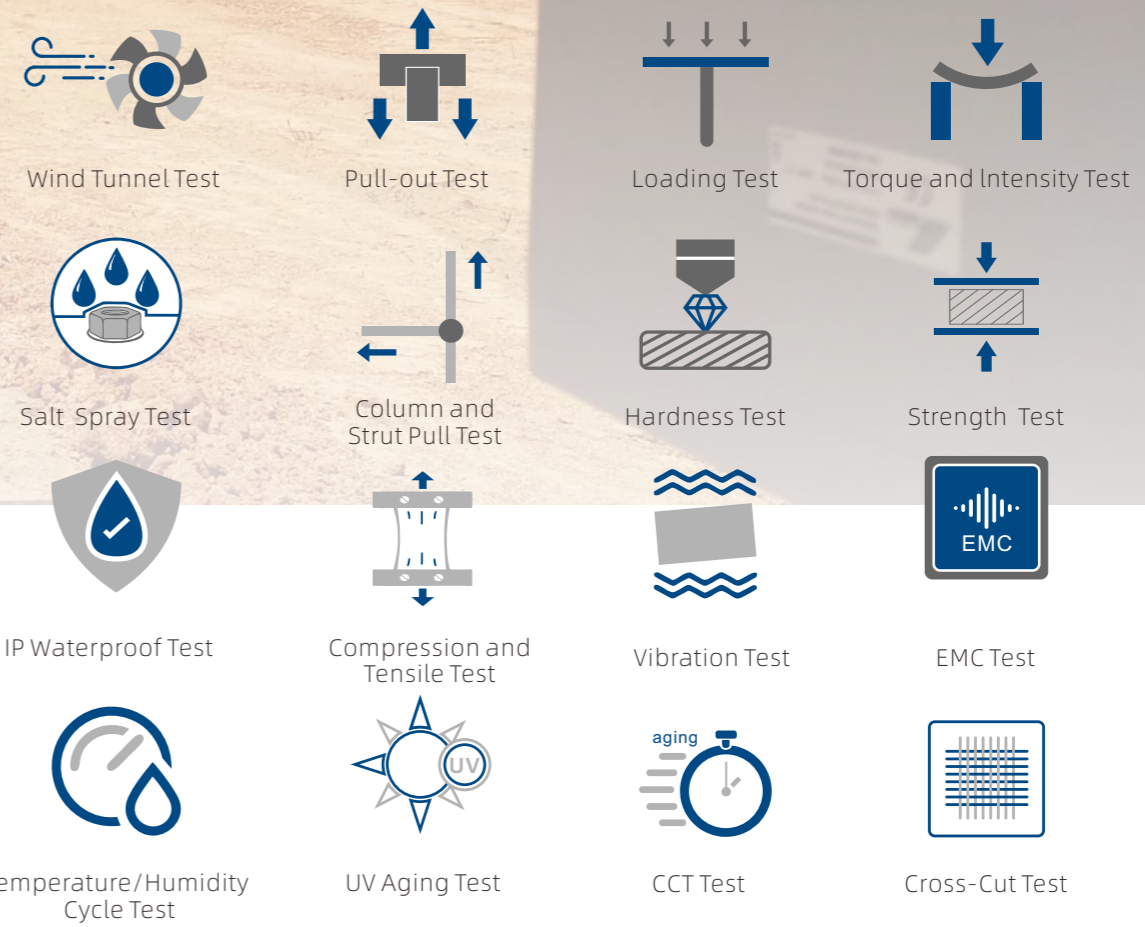


# POWERWAY Tracking System Certification

## Scientific Experiments

Powerway Renewable Energy Co.,Ltd.(abbreviated as 'Powerway') is one of the world's leading manufacture and solution providers of solar tracking ,solar mounting and roof solar racking systems with 11 years of manufacturing and service experience. The headquarter is located in Foshan city,China with manufacturing bases in zhaoping and Tianjin,China.The subsidiary is located in Japan.Powerway also has rich experience in manufacturing and service of large-scale projects in the fields of multifunctional PV mounting system such as Fishery-solar hybrid power station, agro-photovoltaic hybrid power station, and PV carports. In addition,Powerway has won numbers of certifications, such as BV, UL, CE, CPP, IEC, TUV and ISO9001.

So far,The installed capacity of Powerway has reached **10GW**,which over 200 projects in more than 60 countries around world.We have established strategic partnerships with many well-known PV companies, becoming a confident brand in the PV industry.



## ■ Third Generation - PowerFit Horizontal Single-axis Decentralized Tracker

### PowerFit

This is the basic model of PowerFit. It is driven by the horizontal single axis and arranged modules in single portrait. PowerFit adapts monofacial and bifacial modules(include: Frameless module).The new design improves the performance of wind load and snow load while the high power modules were installed.



### PowerFit-Plus

This is the advanced model of PowerFit.It is driven by horizontal single axis and arranged modules in two portrait.Compared with the system of fixed structure which installed monofacial modules,PowerFit-Plus increases 10~26% yield of power generation while the high bifacial modules were installed.



### PowerFit-DUO

PowerFit-DUO is composed of a single motor and two single-axis tracker which arranged modules in single portrait. Compared with independent-row trackers,PowerFit-DUO has 50% less motors and controllers, further reducing costs and failure rates. With its stronger wind resistance ,PowerFit-DUO realizes the installation arrangement in high wind speed areas.



### PowerFit-Blade

PowerFit-Blade is a new generation of single-axis multidrive transmission tracker of Powerway and adapt high power modules.The compact design enables PowerFit-Blade to reduce the number of parts for higher installation efficiency .With its excellent performance, PowerFit-Blade realizes the installation arrangement in high wind speed areas.With intelligent tracking algorithms, PowerFit-Blade will maximize potential of each module in the power station.



### System Parameter

Tracking System	Independent horizontal single-axis tracker
Capacity	48~72 kW
Tracking Range	±45 / ±60 (Customizable)
Area	1.1~1.4 ha/MW

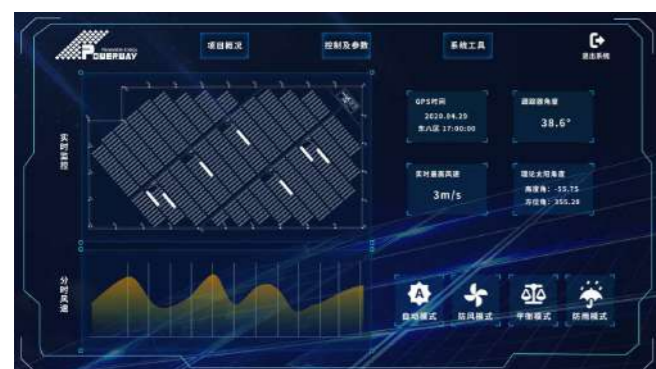
### Mechanical Parameter

Drive System	Rotary reducer, Geared DC Motor
Material	Hot Dip Galvanized Steel   Aluminum Alloy   Hot Dip Zn-Al-Mg Coating Steel   Zinc Alloy Coated Steel
Strings on Tracker	3-6 Strings
Slope East-West	Unlimited
Slope North-South	≤18%(Customizable)
System Dimension	Different as the Module Dimension
Module Type	Structure Adaptable to Available PV Modules Types On Markets
Configuration	Horizontal   Vertical
Ground Clearance	> 400mm(Customizable)
Foundation	Driven Pile   Concrete
Protection Wind Speed	20m/s(ASCE 7-10)
Survival Wind Speed	50m/s(ASCE 7-10),higher wind load available
Design Code	ASCE7,EN1991,SBC301,MS1553,AS1170,NZS1170,Nch432,NBR6123,A1J,GB50009etc.

### Electrical Technical Parameter

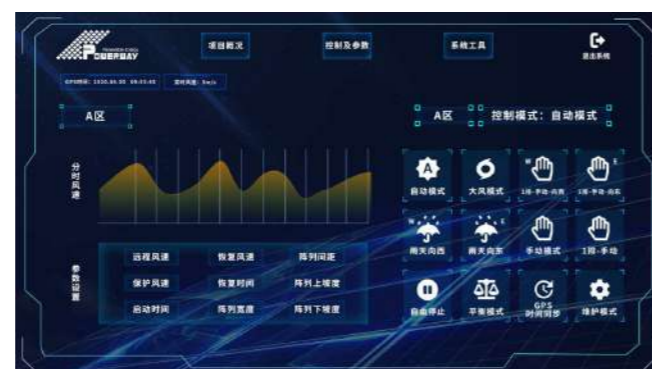
Power Supply	L+N 90~260VAC (Wide Voltage Input)   37VDC   PV String Power(1000-1500VDC)
Control Algorithm	Astronomical Algorithm + Tilt Sensor Close Loop
Tracking Method	Active Tracking Closed-loop Control
Control Core	MCU (32bit)
Strong Wind Protection	Yes
Night-time Stow	Yes
Rotation Limit Protection	Yes
Backtracking	Yes
Rain and Snow Mode	Yes
Motor Protection	Yes
Motor Voltage	24VDC
Wireless/Wired Network	ZigBee, RS485, ZigBee+Rs485, Lora
Operating Temperature	-30°C ~ 70°C
Tracking Accuracy	±2°
Tracker SCADA	Yes
UPS	Yes

■ Data acquisition and Monitoring control system (SCADA)



Real-time monitoring

With graphical interfaces, plant O&M engineers intuitively monitor key informations of different areas and can operate a specific tracker through the feedback parameters at the first time.



Smart automatic control

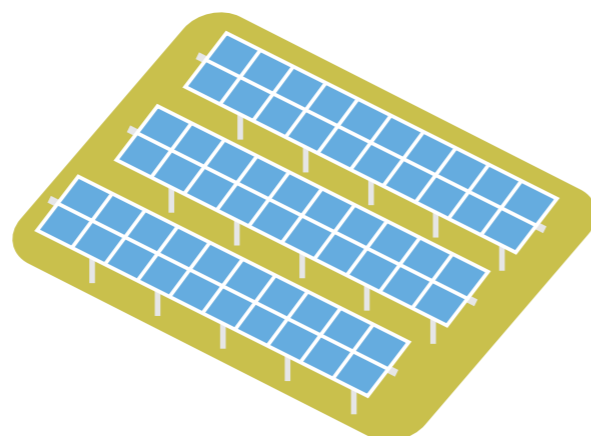
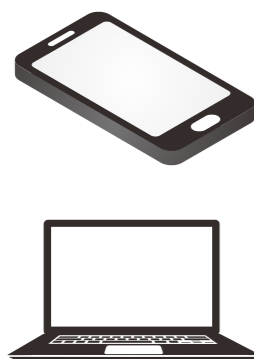
The SCADA system collects real-time environmental information through sensors. Through specific settings, the system automatically controls the overall or partial trackers according to different environmental datas.

■ Intelligent interactive system(✳)



Mobile Device Debugging

Based on the previous generation of controllers, the Power Smart One system has integrate multiple technological applications for intelligent PV power station. During the construction at the project site, Power Smart One enable the tracker to achieve the quick deployment and group commissioning, etc. The site engineer can largely enhance O&M efficiency with the Power Smart One through mobile devices. It will simplify the operation procedure. By OTA (Over - the - Air Technology), functions and program upgrade will improve the performance tracker controller.



■ Intelligent Systems Optimization



·PowerFit Control Box



Power Supply	PV String Power 37-1500VDC+UPS
Overall Function	High-performance processor OTA upgrade procedure
Function Control	Powerway AI astronomical algorithm Powerway AI backtracking Intelligent motor driver chip
Motor	Motor software current limit protection/recovery Motor inrush current limit start and stop
Battery management	Intelligent management of battery charge and discharge time Low temperature battery management system
Communication	RS485/ZigBee
Operating Temperature	Lowest to -40 °C
Cabinet Characteristics	IP67 Current protection, anti-aging, flame retardant

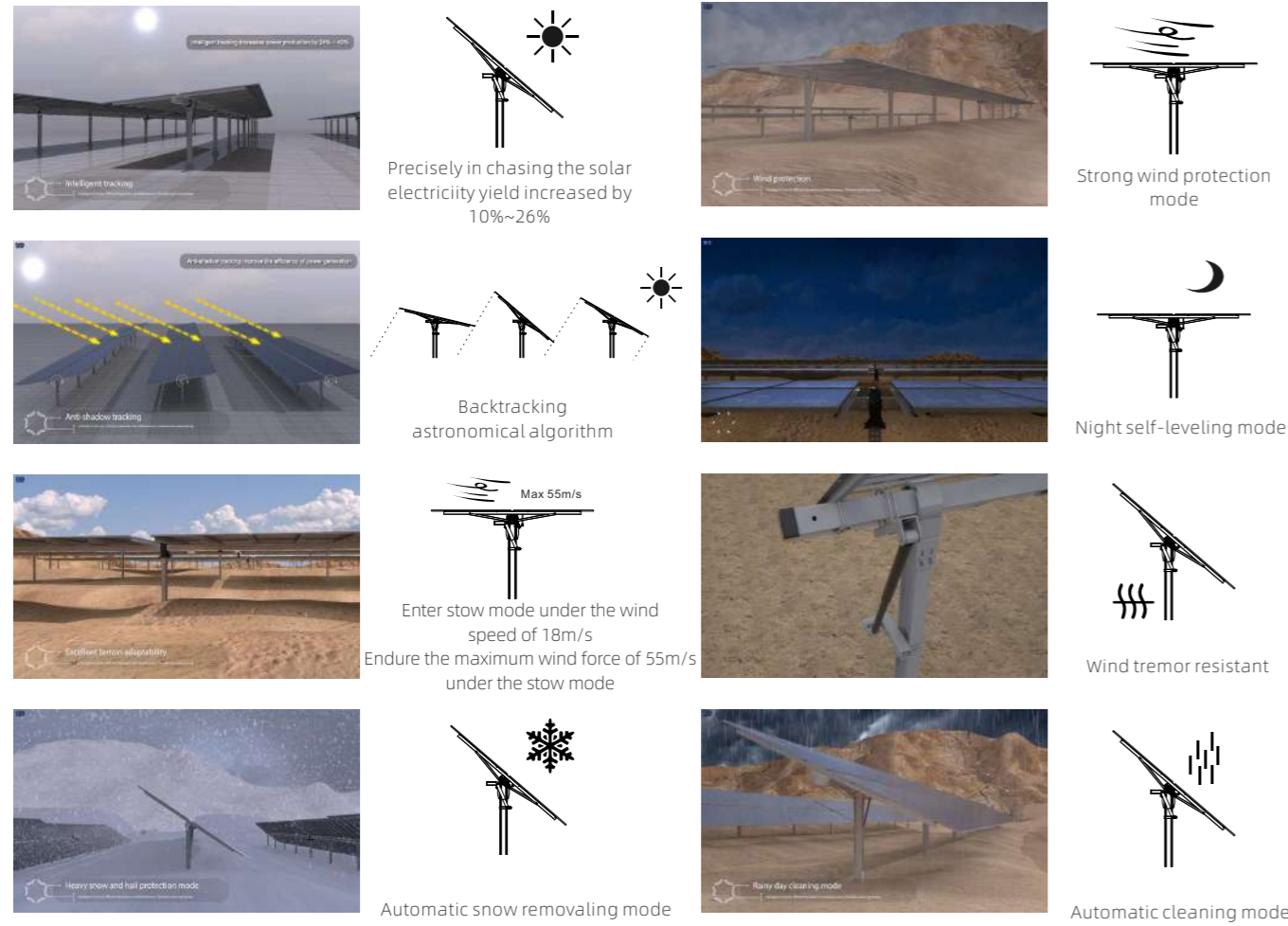


·PowerFit Communication Station

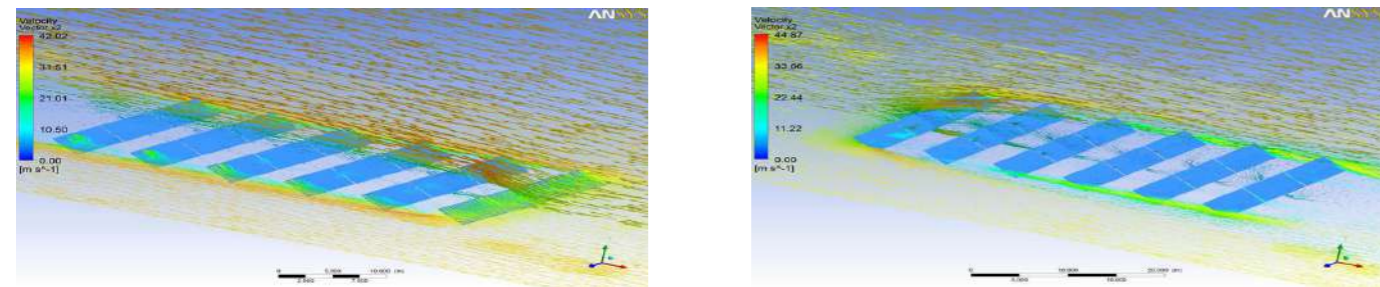


Power Supply	L+N 90-240VAC 37VDC+UPS
Overall Function	High-performance processor OTA upgrade procedure Night protection mode
Function Control	Strong wind protection mode Rain mode、Snow mode、flood mode
Battery management	Low consumption power station monitoring Intelligent management of battery charge and discharge time Low temperature battery management system
Communication	RS485/ZigBee/Lora Communication timeout strategy
Operating Temperature	Lowest to -40 °C
Cabinet Characteristics	IP67 Current protection, anti-aging, flame retardant

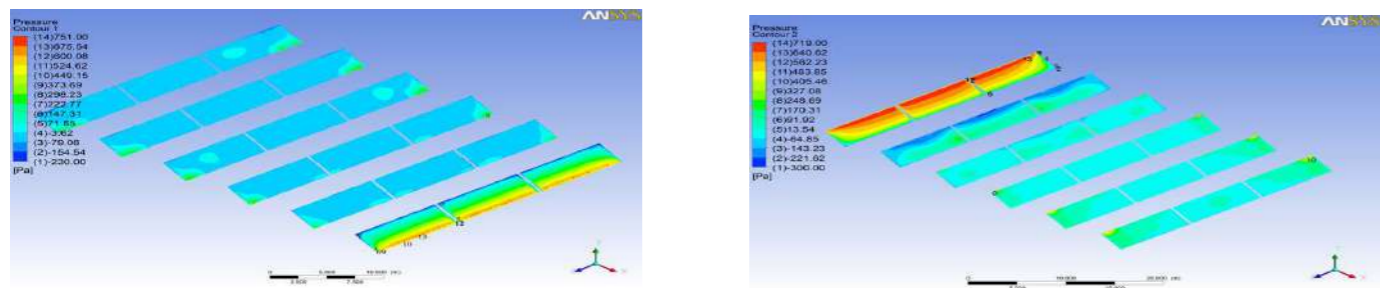
## Product Advantages



## Software Simulation Tests



Velocity distribution on windward/leeward side



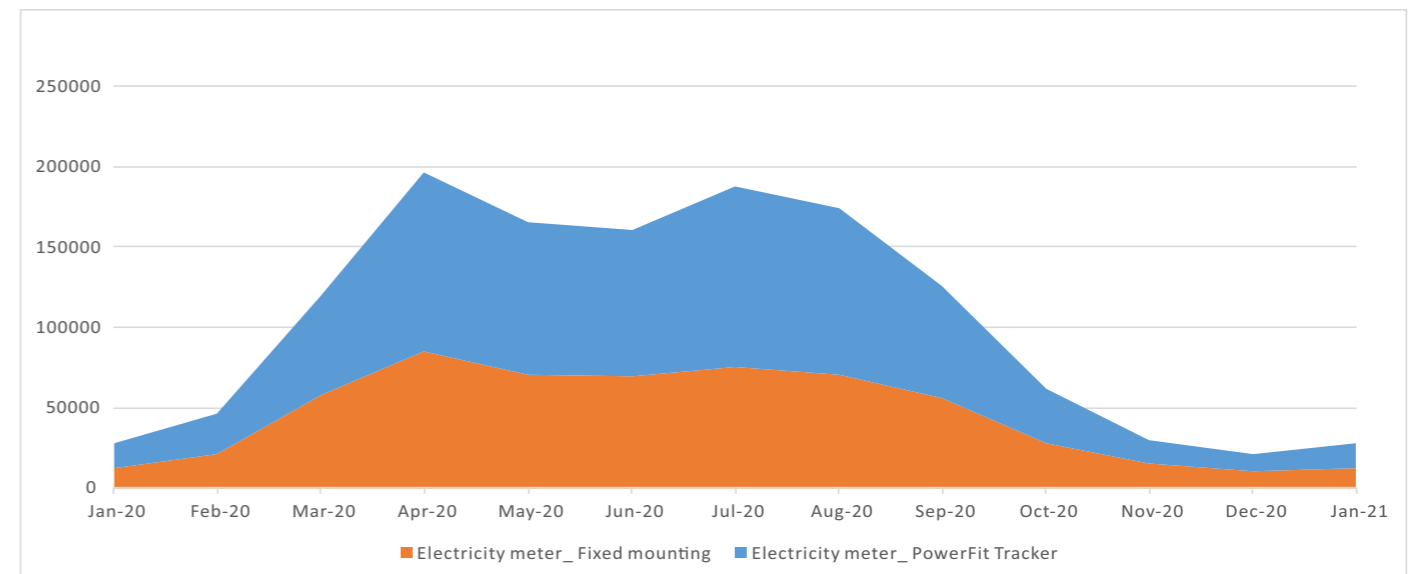
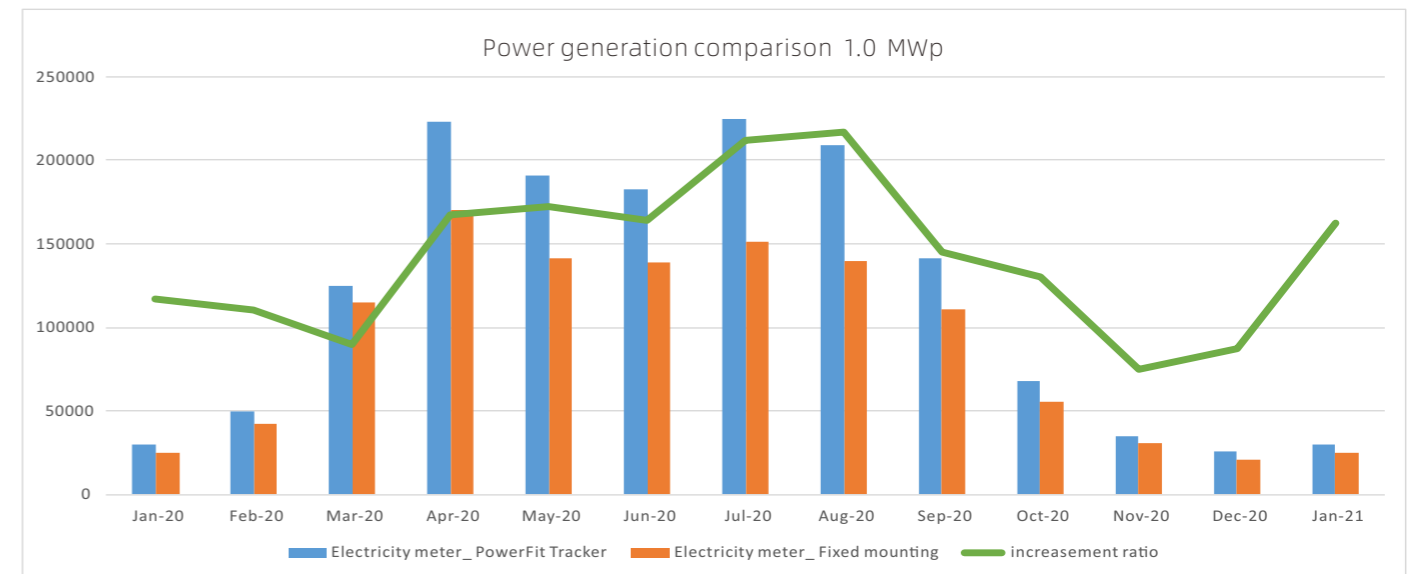
Pressure distribution on surface on windward/leeward side

## Backtracking Increase The Electricity Yield



**Backtracking :** With shadow analysis , the tracking system ensure no shadow blocking between two adjacent rows during an entire day's tracking process, and maximum light-emission intensity of module and improves the power-generation efficiency up to **6%**.

## Benefit Comparison Of Electricity Yield





# Powerway Tracking System Project References

Project Site Chile

Foundation Type H-shaped Steel

Capacity 130 MW

Product type PowerFit

Installation time 2020



Project Site Malaysia

Foundation Type H-shaped Steel

Capacity 45 MW

Product type PowerFit

Installation time 2020



Project Site Malaysia

Foundation Type H-shaped Steel

Capacity 44 MW

Product type PowerFit-Plus

Installation time 2020



Project Site Swaziland

Foundation Type H-shaped Steel

Capacity 13.5 MW

Product type PowerFit-Plus

Installation time 2020





Project Site	Lithuania
Foundation Type	H-shaped Steel
Capacity	4.5 MW
Product type	PowerFit-Plus
Installation time	2020



Project Site	China
Foundation Type	H-shaped Steel
Capacity	2.9 MW
Product type	PowerLink
Installation time	2016



Project Site	Poland
Foundation Type	H-shaped Steel
Capacity	1 MW
Product type	PowerFit-Plus
Installation time	2019



Project Site	France
Foundation Type	H-shaped Steel
Capacity	3 MW
Product type	PowerMax
Installation time	2016



Project Site	Australia
Foundation Type	H-shaped Steel
Capacity	30 MW
Product type	PowerFit
Installation time	2018



Project Site	U.S.A
Foundation Type	H-shaped Steel
Capacity	14 MW
Product type	PowerMax
Installation time	2016



Project Site	China
Foundation Type	H-shaped Steel
Capacity	30 MW
Product type	PowerLink
Installation time	2017



Project Site	Philippines
Foundation Type	H-shaped Steel
Capacity	1 MW
Product type	PowerFit
Installation time	2021