

Project Case

50MW Horizontal Single-axis Tracking PV System Project of Zheneng Ningdong 150MW PV Composite Power Generation Project

- Installed Capacity : 50MW
- Project Location : Ningdong, Ningxia, China
- Tracking System Type : Alsadara Company PT Tracking System

To Provide Low-cost, High-quality and Clean Energy!



www.alsadaraco.com



+966 58 082 0350



tamim.majed@alsadara.com
Ezdan.Anwer@alsadara.com

alsadara Company, 7th Floor-
Parcel 4.07 – Area 4, King
Abdullah Financial District
(KAFD), Saudi Arabia



Company Profile

Alsadara Company established in 2010, is a reliable provider for molten salt tower CSP solutions. Being specialized in solar thermal energy and multi-energy hybrid power generation business, it has been exploring comprehensive energy applications rooted in molten salt energy storage and developing new business for intelligent PV tracking system. With all these efforts, Alsadara Company is committed to providing

high-quality low-cost green energy for human beings with advanced and efficient renewable energy utilization technology.



Core Competence

Mechanical Structure Design Capability

A professional mechanical structure design team has designed and developed tracking products of various specifications, and the quantity of corresponding frames, slew drives, linear actuators and controllers applied 100,000+ sets.

Control Algorithm Design Capability

A large-scale heliostat field automatic calibration system is developed. The tracking accuracy of the heliostat is above 0.1°, which is 1/20 of the accuracy requirement of the PV tracking system.

Control System Development Capability

100,000-sets scale intelligent control system and tracking system centralized control software have been developed and successfully applied.

Reliability Design Capability

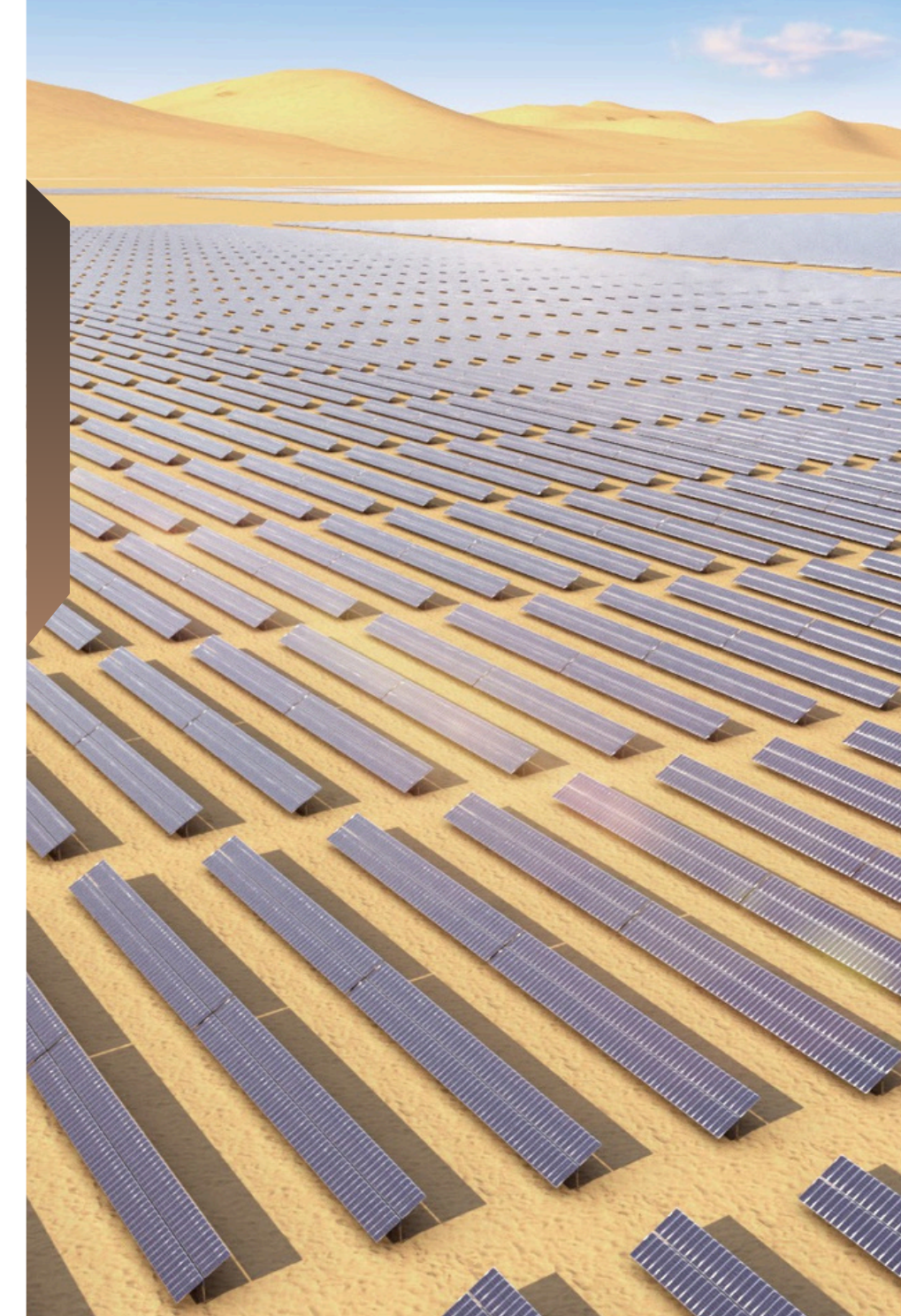
Possess the design capability of highly reliable products, and the products have passed the tests under harsh environmental conditions such as high altitude (above 3000 meters), extreme temperature (below -35°C), extreme weather (strong wind above 42m/s), etc.

Solution Design Capability

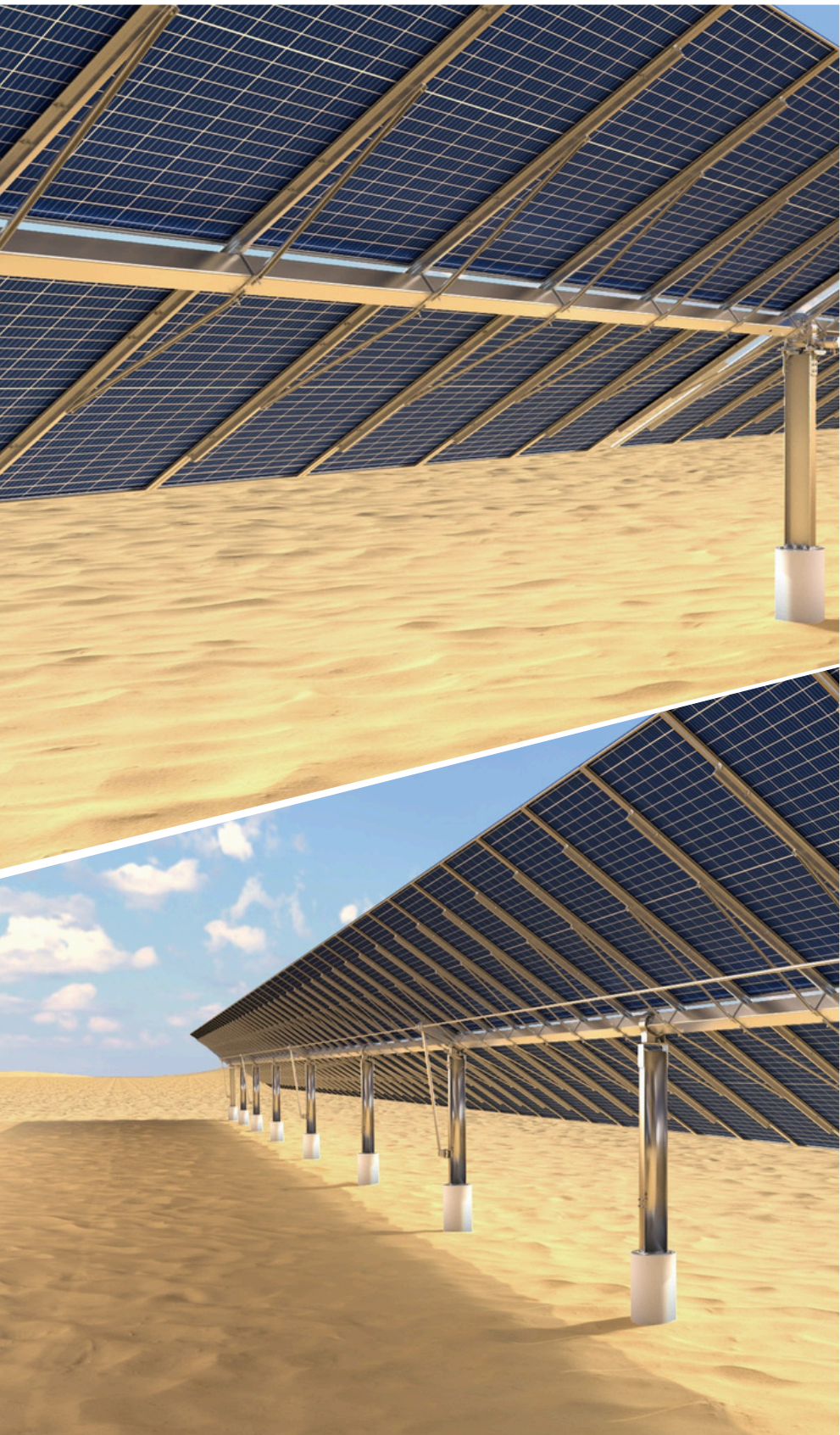
Possess overall solution design capabilities such as PV + CSP multi-energy hybrid power stations and provide users with the most optimized solutions.

Project Installation and Commissioning Supervision Capability

A complete set of project execution standards and a set of scientific project execution progress management system are established.



Alsadara Tracking System
Horizontal Single-Axis PV Tracker



Product Introduction

Thanks to 10+ years of experience in independently designing, developing, manufacturing, and operating high-precision intelligent tracking products, Alsadara Company has actively expanded and extended the industrial chain, carried out technological innovation, and successfully developed Alsadara Company PV tracking system well suited for harsh environmental conditions. The system has the advantages of high adaptability, high reliability, accurate tracking, stable operation, and easy installation & maintenance. Combined with the self-developed intelligent tracking algorithm, it can greatly increase PV power generation. What's more, it has been successfully applied in projects.

In addition, Alsadara Company PV tracking system has passed Cermak Peterka Peterson (CPP) wind test, at the same time, obtained the product certification issued by the global authoritative organization TÜV SÜD, fully verifying the high reliability and stability of this series of PV tracking system.



One of the world's leading third-party certification and testing agencies



One of the best wind tunnel laboratories in the world

High Reliability

Parallel Multiple Driving Points Design

Parallel multiple driving points design increases spindle rigidity, the anti-vibration performance is improved by 20%+, the stress distribution is uniform, and the maximum stress is reduced by 70%.

Electrical Synchronization
Servo synchronous drive technology dynamically adjusts the output torque and makes it more stable with a noise level lower than 30dB.

High Strength Structural Design

With the main shaft as the center of rotation, it adopts a symmetrical triangular support structure with high structural strength.

Compatible with All Monofacial and Bifacial PV Modules

The size of the installation interface can be adjusted according to components of different specifications, hence compatible with all mainstream PV modules.

Adapt to Various Applications

The product can be customized and optimized according to features of terrain and landform, hence can easily adapt to complex terrains such as slopes and to maximize land utilization with best efficiency.



High Adaptability

High Intelligence

Reverse-tracking Function

It has a reverse tracking function with terrain adaptability to ensure all-day tracking without blocking, preventing the risk of "hot spots", improving operational safety, and effectively increasing power generation.

Customized Kinematic Models

Customize the kinematics model for each row of trackers to achieve more precise tracking control (**tracking accuracy $\leq 1^\circ$**).

Power Generation Increase

8%-15% ↑

Product Advantages

Easy Maintenance at a Lower Cost

Modular design, easy to assemble and disassemble.

Flexible Commissioning

Remote and on-site local control modes to support on-site hand-held device debugging.

Efficient Troubleshooting

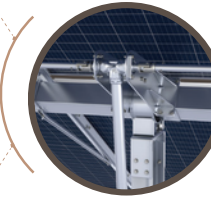
Equipment self-diagnosis function to quickly identify the cause of the fault.

Easy Installation and Maintenance

Alsadara Company PT Tracking System Single Row / Linear Actuator Multi-Point Drive

The multi-point parallel drive design has more drive pylons, and the stress distribution of the frame is more uniform, suitable for harsh environmental conditions such as strong winds.

Support mechanical or electrical synchronization hence a more uniform driving torque.



With a hard limit mechanism inside the linear actuator, the overall hard limit and overload protection function is more reliable.

Unique sealing design is applied on linear actuator. Grease lubrication is used hence no oil pollution and no risk of oil leakage.



Technical Parameters

Basic Parameters

System Type	Single row horizontal single-axis Compatible with all monofacial and bifacial PV modules $\pm 45^\circ$ ($\pm 60^\circ$ optional)
Component Type	Linear actuator multi-point parallel drive, 24V DC brush/brushless motor
Tracking Angle Range	Hammered piles/cast-in-place piles/cement foundation Zinc-Aluminum-Magnesium coated steel/hot-dip galvanized steel/pre-galvanized steel
Drive Technology	Pile
Foundation	Transformer power supply/from PV string (with battery)
Structural Materials	
Power Supply	

Electric Control Parameters

Control System	Control MPU controller Centralized control software/open communication interface
Software Control Algorithm	Astronomical algorithm + position sensor closed-loop control + intelligent tracking algorithm*
Accuracy	$\leq 1^\circ$ Wired mode RS485/wireless mode
Communication Method	Zigbee

Environmental Adaptability

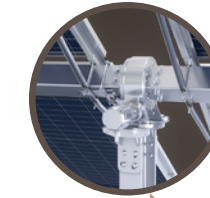
Wind Resistance Design	Slope According to specific requirements
Range Protection Level	North-south slopes $\leq 15^\circ$ IP66 -
Working Temperature	40°C to 70°C

Safety Protection

Strong Wind and Snow Protection	Available
Night Mode	Available
Motor Overload Protection	Available

*Backtracking algorithm with terrain adaptation + radiation optimization tracking strategy.
*Can be adjusted according to the terrain of the project without the east-west direction restraint.

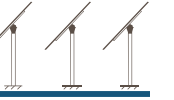
Alsadara Company PJ Tracking System Single Row / Slew Drive Multi-Point Drive



Higher north-south slope adaptability, up to 20%, suitable for larger slope sites.

The slew drive adopts a closed transmission with the worm gear transmitted in a fully lubricated sealed box unaffected by sand and dust, meaning better sand and dust adaptability.

The slew drive can achieve 360-degree rotation, so the slew drive solution has a wider tracking angle range.



Technical Parameters

Basic Parameters

System Type	Single row horizontal single-axis Compatible with all monofacial and bifacial PV modules $\pm 60^\circ$
Component Type	Slew drive multi-point parallel drive, electrical synchronization, 24V stepping servo motor
Tracking Angle Range	Hammered piles/cast-in-place piles/cement foundation Zinc-Aluminum-Magnesium coated steel/hot-dip galvanized steel/pre-galvanized steel
Drive Form	Pile
Foundation	Transformer power supply/from PV string (with battery)
Structural Materials	
Power Supply	

Electric Control Parameters

Control System	Control MPU controller Centralized control software/open communication interface
Controlling Software Control Algorithm	Astronomical algorithm + position sensor closed-loop control + intelligent tracking algorithm*
Tracking Accuracy	$\leq 1^\circ$ Wired mode RS485/wireless mode
Communication Method	Zigbee

Environmental Adaptability

Wind Resistance Design	Slope According to specific requirements
Range Protection Level	North-south slopes $\leq 20^\circ$ IP66 -
Working Temperature	40°C to 70°C

Safety Protection

Strong Wind and Snow Protection	Available
Night Mode	Available
Motor Overload Protection	Available

*Backtracking algorithm with terrain adaptation + radiation optimization tracking strategy.