



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

QUARTERLY UPDATE

Q4, 2023



PROJECT REFERENCE



In Operation

SUPCON SOLAR Delingha 50MW
Molten Salt Tower CSP Plant



In Operation

POWERCHINA Gonghe 50MW
Molten Salt Tower CSP Plant

IN OPERATION

The best benchmark, Our SUPCON SOLAR Delingha 50MW Molten Salt Tower CSP Plant hit another record high annual production!

152.4GWh
2023

Annual production record

Good news from the site of the SUPCON SOLAR Delingha 50MW Molten Salt Tower CSP Plant ("Plant") said that as of December 31 total annual accumulative actual production of the Plant in 2023 has **reached 152.4 GWh, i.e. 104.38% of the designed value (146GWh), exceeding the target in a second year.**



The Plant has been operating in good condition. Not only is the annual designed production completed 10 days ahead of schedule, but also an increase of 4.13% compared with that of 2022. As shown in the monthly power generation in Figure 1, the Plant recorded an impressive monthly power generation of 18.18GWh in November. In addition, there were 129 days seen a daily performance above 100%.

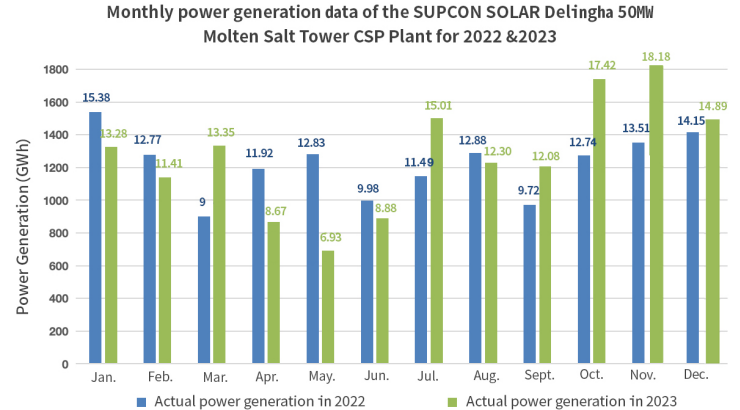
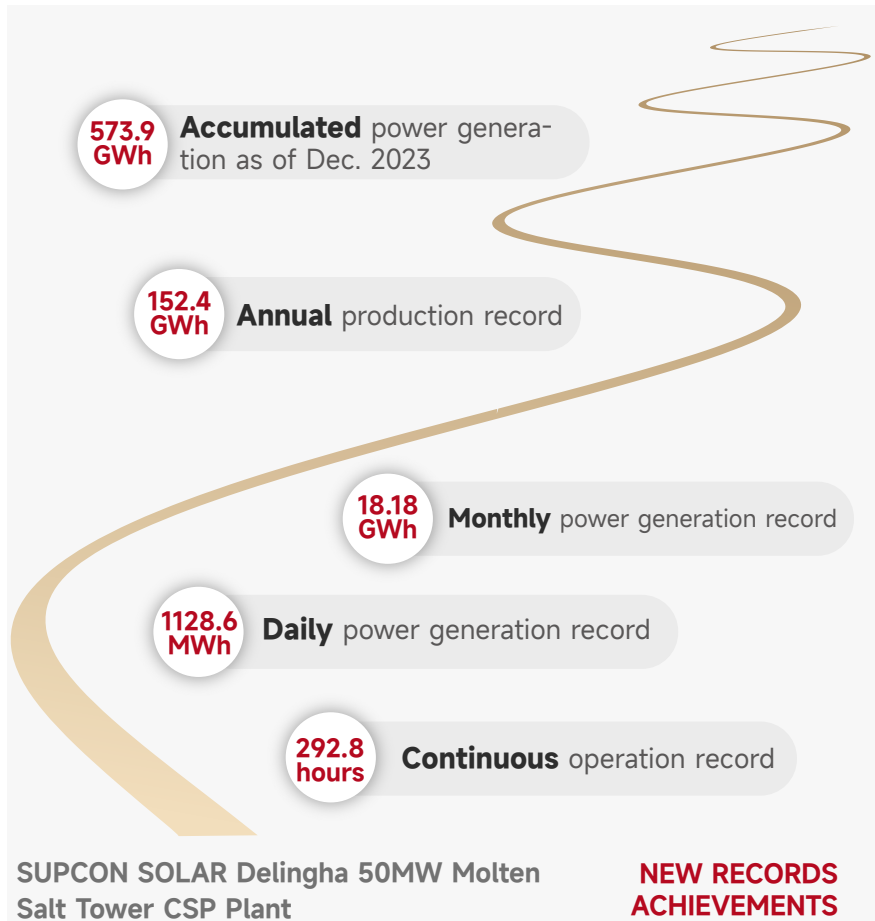


Figure 1: Monthly Power Generation Data of the Plant for 2022 & 2023



SUPCON SOLAR Delingha 50MW Molten Salt Tower CSP Plant

NEW RECORDS ACHIEVEMENTS



Installed Capacity	50MW
Storage	7 Hours with Molten Salt
Land Area	5.47km ²
Heliostats	542, 700 m ²
Electricity Output	146 GWh/year
Coal Saving	46,000 tons/year
CO ₂ Emission Reduction	121,000 tons/year



»» *“The design of the plant corresponds to state-of-the-art design”.*

-----Fichtner

IN OPERATION

12.222GWh! Power Generation of POWERCHINA Gonghe 50MW Molten Salt Tower CSP Plant Break the Record

12.22GW

Nov. 2023

Monthly electricity generation record

As of November 30th, 2023, the POWERCHINA Gonghe 50MW Molten Salt Tower CSP Plant, constructed with the participation of Cosin Solar, achieved **a new monthly power generation record of 12.222GWh** in November since its commissioning.



The operational records indicate that the plant's theoretical power generation for the month was 12.2352GWh, **while the actual power generation reached 12.222GWh, resulting in a monthly achievement rate of 99.89%**. Out of the 30 days in this month, there were 19 sunny days, 6 cloudy days, and 5 overcast days. The plant operated for 25 days in total, **with 15 days achieving a single-day power generation rate exceeding 100%**.

At the invitation of the project owner and the EPC company, a technical team consisting of nine members from Cosin Solar was deployed to the project site starting from November 1st. They will engage in a one-month initiative to optimize operational strategies.

During this period, the Cosin Solar technical team took charge of the operation of the Solar Field and MSR System and provided recommendations for the operation of the the TESS and SGS Block.



Cosin Solar technical team

The team placed special emphasis on the optimization of the startup procedures for the **Solar Block**, the **coordination between the Solar Block and SGS Block**, operational strategies for cloudy days, and mirror defrosting operations.

With the close cooperation of all parties, the overall operational efficiency of the plant saw significant improvement. Notably, **the heat collection of the Solar Block for that month reached 107.46% of the theoretical value**, garnering high commendation from both the owner and the EPC company.

The POWERCHINA Gonghe 50MW Molten Salt Tower CSP Plant has consistently achieved new highs in electricity generation so far this year, breaking records for daily, monthly, and year-to-date output. The power generation performance has witnessed rapid improvement.



- One of the China's first batch of CSP demonstration projects.
- Cosin Solar is the technology and equipment provider of the solar island and is awarded with commissioning service for the whole plant and subsystems.
- The plant started construction in May. 2018, was synchronized to the grid on Sept. 19th, 2019 and reached full-load operation on Nov. 6, 2020.

Installed Capacity	50MW
Storage	6 Hours with Molten Salt
Land Area	2.12km ²
Heliostats	600,320 m ²
Electricity Output	156 GWh/year
Coal Saving	51,200 tons/year
CO ₂ Emission Reduction	154,000 tons/year

PROJECT REFERENCE



Under Construction

Jinta ZhongGuang Solar “CSP + PV”
Hybrid Pilot Project 100MW CSP Project



Under Construction

CTCG Qinghai Qingyu DC 100MW
CSP Project



Under Construction

ENERGY CHINA Xinjiang Turpan CSP + PV
Integration Project 100MW CT CSP Project

UNDER CONSTRUCTION

Milestone Achieved! All the 25,594 sets of heliostats have been installed for the Jinta ZhongGuang Solar "CSP + PV" Hybrid Pilot Project 100MW CSP Project

25,594 sets of heliostats

Dec. 2023

Milestone Achieved



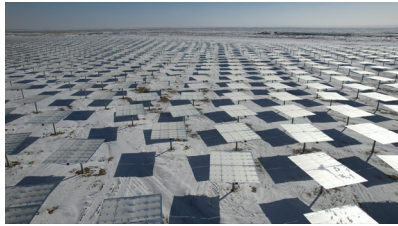
On December 26, installation of the 25594th heliostats was successfully completed in the Jinta ZhongGuang Solar "CSP + PV" hybrid pilot project 100MW CSP project, marking the completion of the assembly and installation of all the heliostats in the project.



All heliostats have been installed

Despite the cold wave and blowing sandstorm, the project construction was right on fire. In about 7 months from the first heliostats was installed, by sticking to the project milestones and through carefully planning and close cooperation, the Cosin Solar team managed to complete all the heliostats assembly and installation tasks with high efficiency and high quality, laid a solid foundation for the full operation of the project.

Up to now, the civil works of the project have been mostly completed, and the installation works are in full swing. Electricity delivery access point Jinta 750 kV substation and the transmission line are under construction. Going forward, the project execution department will continue to coordinate with all parties to speed up the construction of the delivery project and strive to connect the project to the grid as soon as possible.



Construction site of solar field under snow



Complex and living building in front of the factory

Jinta ZhongGuang Solar "CSP + PV" hybrid pilot project is developed and constructed by Jinta ZhongGuang Solar Power Generation Co., Ltd. It is comprised of a 100MW CT CSP and 600MW PV. The 100MW CT CSP project, with an 8-hour MSES, uses solar thermal tower technology fully developed by Cosin Solar.



The solar field glowing in the sun

Installed Capacity	100MW
Storage	8 Hours with Molten Salt
Land Area	3.62km ²
Heliostats	767,820 m ²
Electricity Output	209 GWh/year
Coal Saving	481,600 tons/year
CO ₂ Emission Reduction	1,310,000 tons/year

UNDER CONSTRUCTION

CTCG Qinghai Qingyu DC 100MW CSP Project



On October 17, the first set of heliostats for our CTCG Qinghai Qingyu DC 100MW CSP Project (the “Project”) was successfully assembled and installed on site.

By the end of December, installation of the 1672nd heliostats for Project was successfully completed, and the tower of plant reached the top.

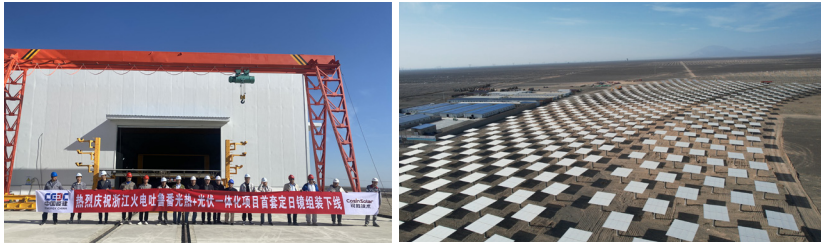


- Cosin Solar will participate in the overall design and project management and be responsible for providing the engineering of the solar block, equipment supply, as well as related commissioning and trial operation advisory services.

Location	Haixi State, Qinghai Province
Installed Capacity	100MW
Storage	12 Hours with Molten Salt
Land Area	2.86km ²
Heliostats	711,930m ²
Electricity Output	227 GWh/year

UNDER CONSTRUCTION

ENERGY CHINA Xinjiang Turpan CSP + PV Integration Project 100MW CT CSP Project



On October 20, the first set of heliostats for ENERGY CHINA Xinjiang Turpan CSP + PV Integration Project 100MW CT CSP Project (the “Project”), being constructed by Cosin Solar as a member of the EPC consortium, was successfully assembled and rolled off the assembly line.

By the end of December, installation of the 575th heliostats for Project was successfully completed, and the tower of plant reached the top.



- Cosin Solar will mainly be responsible for the engineering, equipment integration and supply, related commissioning and operation advisory services for the Solar field and the MSR system, together with some necessary technical support for other systems as required by the owner.

Location	Turpan City, Xinjiang Uygur Autonomous Region
Installed Capacity	100MW
Storage	12 Hours with Molten Salt
Land Area	2.47km ²
Heliostats	655,950m ²
Electricity Output	159GWh/year

NEWS IN BRIEF

Refresh the new article / Cosin Solar new official website heavy online

Our company's official website has been upgraded, the new website has eight sections, including ABOUT US, CSP, PRODUCT, SOLUTION, PROJECT, NEWS, CONTACT US, and JOIN US, a comprehensive display of Tower CSP, MSES and PV Tracker business content.



- The former SUPCON SOLAR, officially renamed into Cosin Solar Technology Co., Ltd. ("Cosin Solar" for short) in July 2021
- Founded in 2010, focus on tower CSP and energy storage technology
- Independent R&D with fully patented technology and homebred equipment
- Technology consultancy, equipment integration, engineering services, etc
- Development, investment, construction, commissioning, operation of projects, etc

▶ Youtube: Cosin Solar

▶ Twitter: @CosinSolar

▶ Website: www.cosinsolar.com