CosinSolar

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

QUARTERLY UPDATE

Q1 2022

April 1

TOP NEWS

The Seminar on China-Chile CSP Cooperation was Successfully Held

Aiming to promote the renewable energy cooperation on CSP technology between China and Chile, the seminar “China&Chile: Opportunities and Challenges for the Development of CSP”was held in Santiago at 9:00 am Chilean time on 11th January 2022. Under the lead of the Chilean Ministry of Energy and Department of Commerce of Zhejiang Province, the capital city of Chile witnessed the success of the seminar that was hosted by Association for Concentration of Solar Power (ACSP) and Zhejiang International Contractors Association and organized by Cosin Solar Technology Co.,Ltd.

At the meeting, Mr. Francisco Lopez, Vice Minister of Chile Energy, Zhu Jun, Chief Economist of Department of Commerce of Zhejiang Province, Mr. Fernando Gonzalez, President of ASCP, Li Jun, Secretary General of Chinese Enterprises Association in Chile, and Jin Jianxiang, Chairman of Cosin Solar delivered speeches respectively.

CSP is not only a clean and low-carbon renewable energy generation technology, but also a flexible power supply with long-time, large-capacity and low-cost energy storage, which can promote and guarantee the consumption of intermittent new energy such as wind and photovoltaic power. It can provide auxiliary services such as moment of inertia, reactive power, frequency regulation and voltage regulation to the power system. These features are quite consistent with the needs of the development of Chile's power system and can play a key role in Chile's energy transformation.

In the reporting session, Mr. Juan Carlos Araneda, Planning Deputy Manager of the National Electric Coordinator, Mr. Salvatore Di-Giovanni, Director of Investment Promotion, Mr. Alejandro Jofré, Vice President of the University of Chile, Mr. Camilo Uribe, Project Manager of Chilean SQM Company and Liu Shaochao, Director of Overseas Business Development of Cosin Solar delivered keynote speeches respectively. Read More →

PROJECT UPDATE

SUPCON SOLAR Delingha 50MW Molten Salt Tower CSP Plant

SUPCON SOLAR Delingha 50MW CSP Plant Operated Stably in the New Year

The total power generation of SUPCON SOLAR Delingha 50MW CSP Tower Project was 18.692GWh in January 2022, with achieving rate of 99.15%. The system is operating well.

It is particularly worth being mentioned that at 10:21am on January 23, a magnitude 5.8 earthquake occurred in Delingha, Qinghai Province, with a focal depth of 8 kilometers. While the operation of the plant was stable, the sub-system equipment such as Solar Concentrating, Thermal Receiving, Thermal Storage, Thermal Exchange, and Power Generation were in good condition, and the unit was still in a state of full-load power generation.

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SUPCON SOLAR Delingha 50MW CSP Plant Achieved a Power Generation Rate of Over 100% During the Last Six Months

The total power generation of SUPCON SOLAR Delingha 50MW CSP Tower Plant was 12.773GWh in February 2022, with achieving rate of 98.53%. Since September 2021, the total power generation during the last six months reached 92.456 GWh, with an average achieving rate of 101.12%.

Month	DNI (kWh/m²)	Theoretical power generation (GWh)	Actual power generation (GWh)	Achieving rate
Sept. 2021	193.77	14.574	14.571	99.98%
Oct. 2021	169.81	13.371	13.671	102.25%
Nov. 2021	217.23	17.157	17.907	104.37%
Dec. 2021	186.13	14.515	14.842	102.25%
Jan. 2022	250.53	18.853	18.692	99.15%
Feb. 2022	179.85	12.963	12.773	98.53%
Total	**1197.36**	**91.434**	**92.456**	**101.12%**

Monthly Performance of Delingha 50MW CSP Plant

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How to evaluate the operation performance of a CSP Plant?

The power generation of a CSP plant is affected by many factors such as the installed capacity, energy storage capacity, heliostat field reflection area, weather conditions, etc. Therefore, the operation performance of a CSP plant can not be evaluated only by the power generation, but by several aspects.

First of all, the designed power generation of a CSP plant directly depends on factors such as the installed capacity, energy storage time, and heliostat field reflection area. For example, SUPCON SOLAR Delingha 50MW Molten Salt Tower CSP Plant is installed with a 7-hour energy storage time and heliostat field reflection area of 542,700 square meters, and the designed annual power generation is 146 GWh. Under the same conditions, if the installed capacity is changed into 100MW with a 12-hour energy storage time, the heliostat field reflection area is about 1.4 million square meters, the designed annual power generation is more than 380 GWh.

Therefore,the difference between the actual power generation and the designed power generation is the most important index to evaluate the performance of the CSP plant. At the same time, the actual weather conditions often deviate from the design assumptions, so the achieving rate (The ratio of actual power generation to theoretical power generation which calculated by performance model according to actual weather conditions) is an important measure of the operation performance of the CSP plant in the industry. In the EPC contracts of CSP plants around the world, the achieving rate is the most important basis for the performance assessment.

Jinta ZhongGuang Solar "100MW Tower CSP + 600MW PV" Project Site Leveling Works Officially Started

On March 25, Jinta ZhongGuang Solar "100MW Tower CSP + 600MW PV" project site leveling works started, which marked the full-scale construction phase of the project.

At present, the project is in an orderly manner. The project construction will be carried out as planned, including temporary structures, foundations of tower, the main building, foundations of TESS, heliostat columns construction and heliostat assembly workshop. Cosin Solar will utilize its rich construction experience accumulated in tower CSP projects to escort this project construction, and ensure that the plant will be connected to the grid at full capacity before the end of December 2023.

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Project Profile

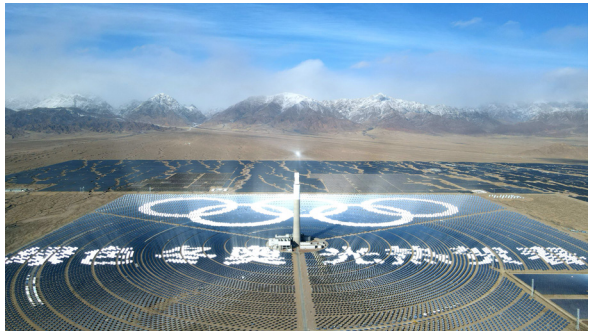
The project is developed and constructed by Jinta ZhongGuang Solar Power Generation Co., Ltd., with a total installed capacity of 700MW. It adopts the configuration mode of "CSP +", including Tower CSP of 100MW and PV of 600MW, and the design electricity production is 1370 GWh/year. In this project, the 100MW CSP project adopts the molten salt tower CSP technology independently developed by Cosin Solar, installed with a 9-hour molten salt thermal storage system.

Project parameters	
Project type	PV+CSP
Project site	Baishuiquan Optoelectronics Industrial Zone, Jinta County, Jiuquan City
Installed Capacity	700MW(100MW Tower CSP + 600MW PV)
Occupied land	17.07km²
Design Annual Electricity Output	1370 GWh/year
Standard Coal Saving	46,160,000 tons/year
CO_2 Emission Reduction	1,310,000 tons/year

CSP parameters	
Installed Capacity of CSP	100MW
Energy Storage Duration	9hours with molten salt
Design Annual Electricity Output	227GWh/year
Occupied land	3.62km²
Area of Heliostats	817800㎡
Number of heliostats	27260 sets
Receiver Center Height	220m

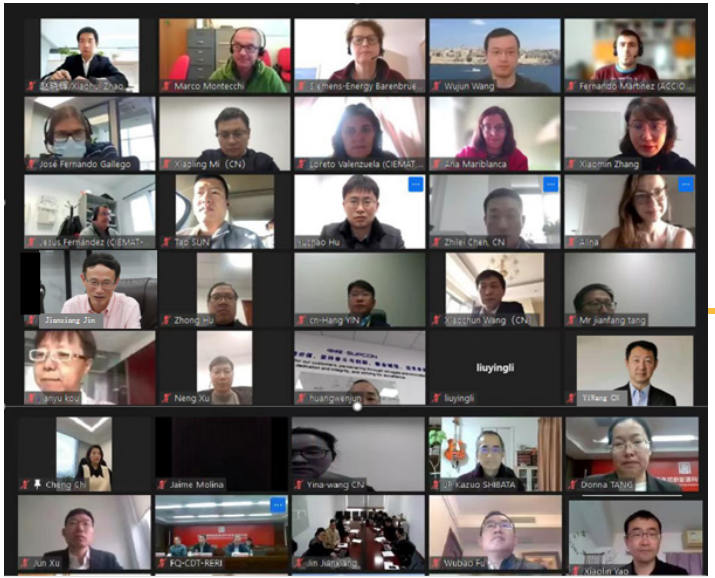
Beijing 2022, a Green Winter Olympics, Meets CSP, a Green and Low-carbon Renewable Energy

More than 27000 heliostats of SUPCONSOLAR delingha 50MW CSP plant spell out the Olympic Rings to create an unforgettable to celebrate the Beijing 2022 Olympic Winter Games.



NEWS IN BRIEF

The First Meeting of the International Working Group of IEC Standard "Technology Specification for Solar Field Control System of Solar Tower Power Plant" was Held Successfully



Global Online Conference

On March 23, the first meeting of the international working group of the International Electrotechnical Commission (IEC) standard "Technology specification for solar field control system of solar tower power plant" (PT62862-4-2) led by China was successfully held.

The meeting introduced the background, main content, handling of previous comments and follow-up work plan of the standard. In-depth discussions on the draft clauses and key technical issues were carried out during the meeting. Next, the working group will further refine the draft according to the contents of the meeting, and prepare for the second international working group meeting.

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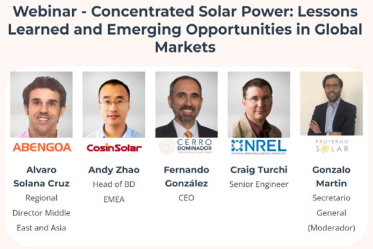
UPCOMING EVENTS

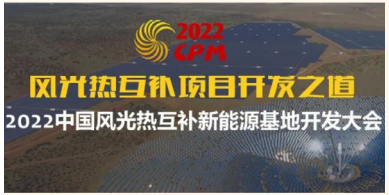


ATA Webinar: Lessons Learned and Emerging Opportunities in Global Markets

6 April at 15:00 CEST / 21:00 CST

Online

Cosin Solar is attending this event



Multi-Energy Complementation Development Conference in China

April

Xian, China

Cosin Solar is attending this event

CosinSolar

A Global Leading Provider for Molten Salt Tower CSP

- **The former SUPCON SOLAR，officially renamed in July 2021 into Cosin Solar Technology Co., Ltd. (Cosin Solar for short)**
- 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
- Development, Investment, Construction, Operation of projects

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