

Concentrated Solar Power Market to Hit \$28.2 Billion by 2032, Growing at 16.6% CAGR | Allied Market Research

□ *Rising Renewable Integration Fuels Concentrated Solar Power Market Growth to \$28.2 Billion by 2032*

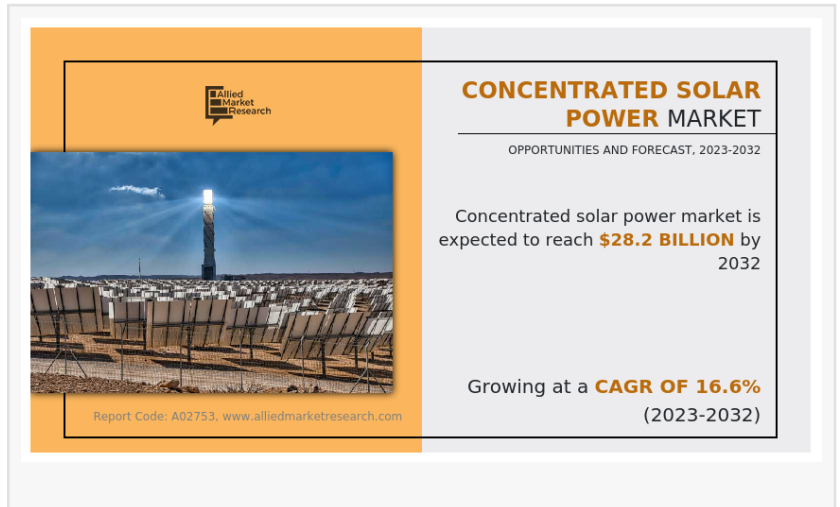
WILMINGTON, DE, UNITED STATES,
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According to a new report published by Allied Market Research, titled

[“Concentrated Solar Power Market”](#),

the global concentrated solar power

market size was valued at \$6.1 billion in 2022 and is projected to reach \$28.2 billion by 2032, growing at an impressive CAGR of 16.6% from 2023 to 2032.



Concentrated Solar Power (CSP) technology utilizes mirrors or lenses to concentrate sunlight onto a small receiver area, where it is converted into heat energy. This heat drives turbines or engines to generate electricity, making CSP an efficient renewable energy source. CSP systems often include thermal energy storage, allowing electricity generation even during cloudy conditions or at night — a key advantage over traditional solar photovoltaic systems.

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Global concentrated solar power market to hit \$28.2 billion by 2032, driven by clean energy demand and hybrid renewable systems.”

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□ Key Insights

Solar Power Tower segment dominated 2022 with over 50% market share.

Industrial applications accounted for the largest revenue contribution.

Asia-Pacific remains the fastest-growing region, with a CAGR of 17% projected during the forecast period.

□ Market Drivers: Government Incentives and Renewable Integration

The global shift toward sustainable energy has positioned CSP as a critical technology in the clean power landscape. Governments across the world are introducing incentives, subsidies, and tax credits to encourage the deployment of CSP plants. These measures aim to reduce upfront capital costs and accelerate adoption.

Regulatory support through simplified permitting and grid integration frameworks has streamlined CSP implementation.

Public funding for research and development has also fueled technological advancements, making CSP systems more efficient and affordable.

Additionally, CSP integration with other renewable sources such as wind and photovoltaic (PV) power is transforming the renewable energy mix. These hybrid systems balance power generation fluctuations, ensuring stable and reliable energy supply. This integration trend represents one of the major [concentrated solar thermal market](#) opportunities in the coming decade.

□ Market Challenges: High Initial Costs and Land Requirements

Despite strong growth drivers, the CSP market faces challenges related to high installation costs and large land requirements. CSP technologies, including parabolic troughs, solar towers, and dish/engine systems, involve complex infrastructure and expensive components like mirrors, receivers, and thermal storage units.

Moreover, CSP plants require vast tracts of land to achieve economies of scale, often located in arid regions with high direct solar radiation. These factors elevate capital and land acquisition costs, particularly in regions with limited available space or costly terrain.

However, ongoing innovations and economies of scale are gradually reducing CSP system costs, making the technology more competitive with traditional energy sources.

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□ Market Segmentation

By Technology:

Parabolic Trough

Solar Power Tower (highest revenue contributor in 2022)

Fresnel Reflectors (fastest-growing segment at 17.6% CAGR)

Dish Stirling

The solar power tower segment dominated the global market, generating more than half of the total revenue in 2022. These systems offer high efficiency and energy storage capabilities, enabling continuous power supply even during low sunlight hours.

By End-use Industry:

Residential (fastest-growing at 17.1% CAGR)

Commercial

Industrial (largest share in 2022)

The industrial sector continues to lead CSP adoption due to its high energy demand and need for sustainable power generation. Meanwhile, residential CSP applications are emerging as consumers seek energy independence and reduced grid dependency.

By Region:

North America

Europe

Asia-Pacific (fastest-growing region)

LAMEA

The Asia-Pacific region accounted for the largest share of the concentrated solar power market in 2022 and is forecast to maintain its dominance through 2032. Countries like India, China, Japan, and Australia are rapidly investing in CSP technology to meet growing electricity demands and reduce carbon emissions. The region's commitment to [renewable energy transition](#) and abundant solar resources make it a hotspot for CSP development.

□ Economic Outlook and Industry Impact

Economic downturns often pose challenges for capital-intensive industries like CSP. Investment hesitancy and financial uncertainty can delay project rollouts and slow market expansion. However, economic pressures also drive innovation and cost-optimization strategies, compelling companies to improve efficiency and competitiveness.

During such periods, major players in the CSP sector intensify their focus on R&D, automation, and cost reduction, fostering technological breakthroughs that enhance CSP's long-term viability.

□ Key Market Players

Prominent companies shaping the concentrated solar power market growth include:

Aalborg CSP

Acciona

ACWA Power

Atlantica Sustainable Infrastructure plc

BrightSource Energy

FRENELL GmbH

General Electric

Rioglass Solar Inc.

Sener

Siemens Energy AG

Other emerging participants such as Abengoa Solar, SolarReserve, TSK Flagsol, and Enel Green Power are also expanding their footprint through innovative project deployments.

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□ Conclusion

The concentrated solar power market is poised for remarkable expansion, driven by the global commitment to renewable energy, hybrid integration, and government support. Although initial

investment and land constraints remain challenges, technological advancements and expanding solar infrastructure will continue to strengthen CSP's position in the renewable energy ecosystem.

By harnessing the power of the sun more efficiently and reliably, CSP stands as a key pillar of the world's clean energy transition, offering a sustainable pathway toward a low-carbon future.

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