

Can a solar power system save CO₂ in cement industry?

Concentrated solar power system is designed for cement industry. Substitution of required thermal energy ranging from 100% to 50% is studied. 7600 heliostats with 570 ha land required for 50% conventional energy replacement with solar energy. Selected conventional cement plant could save 419 thousand tons of CO₂ annually.

Can solar energy be used in cement manufacturing?

Gonzalez and Flamant (2013) designed a hybrid model that uses solar and fossil fuel energy to fulfill the thermal energy requirement for cement manufacturing. Concentrated solar thermal (CST) is a potential replacement for 40%-100% of the thermal energy needed in a conventional cement plant.

Can a conventional cement plant be used for solar thermal applications?

A conventional cement plant (Kotputli Cement Works (KCW), an UltraTech Cement Limited manufacturing unit) at Kotputli, Jaipur, Rajasthan, was investigated for solar thermal application. According to Indian Minerals Yearbook 2020, the plant produced 2.37 million tons, while the production capacity of the plant is 4 million tons.

Can solar energy be used for calcination of cement?

This study shows that it is feasible to implement concentrated solar energy for the calcination process of cement production. Solar resource for the chosen plant location permits operation for an average of 12 h per day. 9 h of these 12 h are useable, with the remaining 3 h being utilized to heat up and cool down the solar reactor.

Best approach to integrating the CST technology in a conventional cement plant is to use solar tower system with solar reactor at the top of the solar tower or preheater tower. Additionally, the ...

An innovative and efficient solar power plant solution has been developed for cement factories. On an annual basis, solar PV systems in cement plants may save 22,941 tonnes of CO₂.

1mw photovoltaic energy storage cabinet used in a cement plant in guinea This work describes the implementation of concentrated solar energy for the calcination process in cement production.

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An industrial solar power system is a photovoltaic power generation system installed in cement plants, mining areas and industrial facilities, utilizing rooftops, storage sheds, open land or idle areas. It ...

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