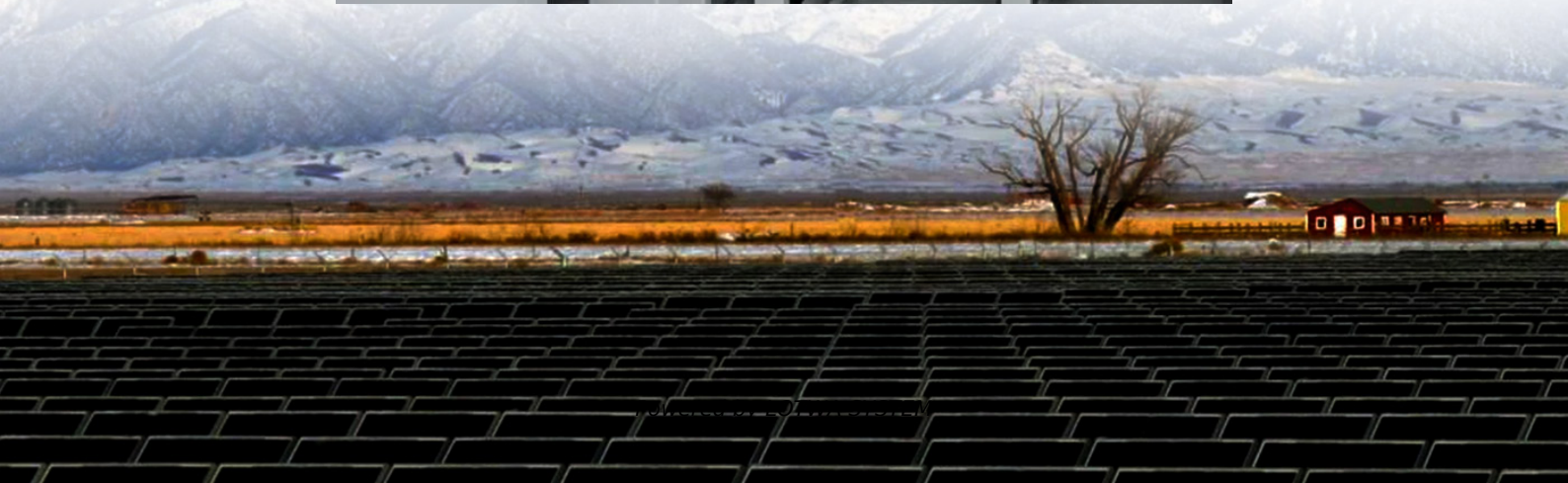


A 120kW solar-powered container in Jerusalem for a cement plant





Overview

This work describes the implementation of concentrated solar energy for the calcination process in cement production. Approach used for providing solar energy includes the utilisation of a solar tower sy.

Can a solar power plant meet the power demand of a cement plant?

According to an IFC report, this is how a solar power plant can help meet the power demand of a generic cement plant. Climate change and energy security are worldwide issues, and the cement industry understands the importance of contributing its fair share as a result of its technological and socioeconomic growth.

How calcined meal is used in a solar cement plant?

Solar cement plant operation during the day with a solar multiple (SM) > 1 . Once more, the storage or conventional calciner makes up the difference between the generated calcined material and the design point. After the solar reactor achieves its optimum value, the calcined meal is immediately provided for the subsequent process.

Can a solar cement plant run continuously?

There is no way that a solar cement plant can run continuously throughout the whole solar day. Therefore, several assumptions/constraints and modifications are considered and included in this model. The model is considered a solar calciner, constructed and tested at the German Aerospace Centre (DLR).

How a solar cement plant is designed?

Solar cement plant was designed based on cement production and the Direct Normal Irradiation (DNI) data available at plant location. Total thermal energy and the amount of land needed for the solar cement factory were analysed. Additionally, total mirror surface, number of heliostats, and land requirement are estimated.



A 120kW solar-powered container in Jerusalem for a cement plant

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