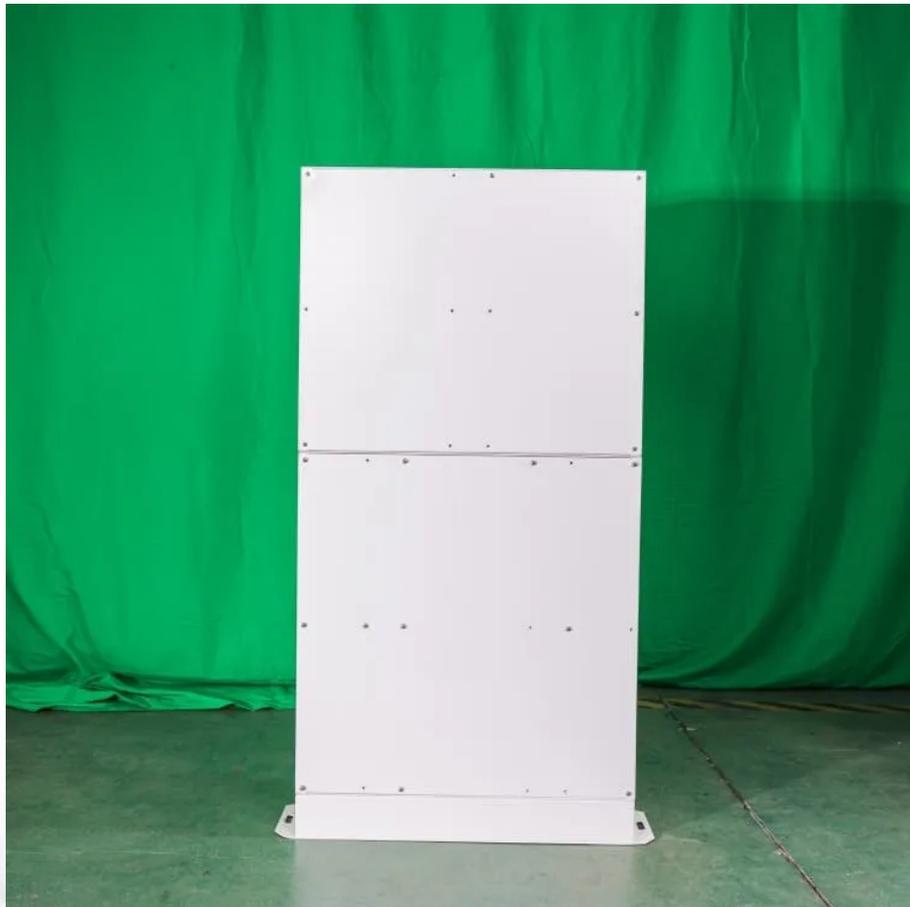


# **20kW Photovoltaic Energy Storage Container Used in a Cement Plant in Nigeria**





## Overview

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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 system save CO<sub>2</sub> 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 CO<sub>2</sub> annually.

How to run solar reactor for calcination of raw material in cement production?

Solar and thermal energy needed to run the solar reactor for the calcination of raw material in cement production using a heat balance equation is as follows: Solar incident power on the solar reactor (Gonzalez and Flamant, 2013): (7)  $Q_{SR} = Q_r \times n + Q_{hrm} \cdot 1 - \% Q$  | The mirror surface needed: (8)  $S_{mirror} = \frac{Q_{SR}}{\eta_{SF} \cdot DNI}$ .

Which cement plant is used for solar thermal application?

Location and DNI availability of the investigated plant A conventional cement plant (Kotputli Cement Works (KCW), an UltraTech Cement Limited manufacturing unit) at Kotputli, Jaipur, Rajasthan, was investigated for solar thermal application.

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.



## 20kW Photovoltaic Energy Storage Container Used in a Cement Plant

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Nigeria container photovoltaic energy storage solution

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Nigeria Container , Nigeria living container ...

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