SolarCabinet Energy

Solar concentrating tracking system

Overview

What is solar tracking?

3.1. Why tracking?

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Solar tracking is a technology for orienting a solar collector, reflector, or photovoltaic panel towards the sun. As the sun moves across the sky, a tracking device makes sure that the solar collector automatically follows and maintains the optimum angle to receive the most of the solar radiation.

Do solar concentrators need tracking?

Some solar concentrators hugely benefit from tracking, while some others do not. So, the tracking systems can be added with additional cost and certain trade-offs in system design only when it pays off. The required accuracy of tracking varies with application.

Do concentrating solar power systems benefit from tracking?

First of all, the systems that specifically utilize the direct beam radiation benefit from tracking. In majority of concentrating solar power (CSP) systems, the optics accept only the beam radiation and therefore must be oriented appropriately to collect energy. Such systems will not produce power unless pointed at the sun.

What type of tracker is used in high-concentration solar systems?

For high-concentration systems, it is necessary to use a dual axis tracker that follows both the daily and seasonal motion of the Sun with high precision. At present, tracking is achieved by the use of a mechanical tracker that rotates the whole module to maintain normal light incidence.

What are the applications of solar tracking system?

The main application of solar tracking system is to position solar photovoltaic (PV) panels towards the Sun. Most commonly they are used with mirrors to redirect sunlight on the panels. Cross-Reference: Design and Implementation of High Efficiency Tracking System.

How does a hybrid solar concentrator work?

The 9 meter hybrid parabolic solar concentrator (solar dish) continuously tracks the sun throughout the day using a dual axis tracker enabling the system to harvest maximum solar energy from early sunrise to late sunset. Most solar concentrator tracking technologies use an actuator for vertical tracking.

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[Control Algorithms and Hardware for a Concentrating Solar Plant ...]

There are four general types of CSP technologies according to the different optical concentration ratios: parabolic trough collectors (PTCs), linear fresnel collectors (LFCs), solar ...

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