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Height difference of solar collector container

Overview

In solar power tower (SPT) systems, selecting the optimum location of thousands of heliostats and the most profitable tower height and receiver size remains a challenge. Given the complexity of the problem.

How to choose a solar flat plate collector?

As studied by different authors [2-5], general rules of thumb can be stated for the installation of solar flat plate collectors. For maximum annual energy availability, the slope of the collector should be equal to the angle of latitude for low latitude countries (< 40°), increasing to latitude plus 10° for higher latitude countries (>40°).

How to choose a solar collector?

The solar collector has to take the optimal position that will guarantee the highest generation of heat. Optimal positioning must be based on rigorous calculations and not on the basis of experience. Such calculations lead to the improvement of the operation of solar energy systems. This paper gives.

How to improve the efficiency of a solar collector?

However, one of the criteria to improve the efficiency of the collector is to increase the absorbed radiation by the collector [2-4], which emphasizes the importance of proper orientation of the collector. For value for money, the collector should be oriented properly so as to receive maximum solar radiation.

What is the optimal tilt angle of a solar collector?

Handoyo and Ichsani obtained the optimal tilt angle of a solar collector to maximize the solar radiation received at Surabaya – Indonesia and found the optimal tilt angle during March 12 - September 30 is varied between 0 and 40° (face to the North) and during October 1 - March 11 is between 0 and 30° (face to the South) .

Which equator should a solar collector be tilted towards?

For maximum annual energy, the collectors should be tilted towards the equator, i. e. towads the south in the northern hemisphere and north in the southern hemisphere. At Iqbal , when the slope is optimum variation of surface azimuth angle does not have significant effect on the received solar energy.

How much does a solar tower cost?

For a solar tower plant with 15 h of storage, such as Gemasolar (around 20 MWe), and using the PSA-Almeria solar resource (Meinecke, 1982), the LCOE would be around 24 ¢ / kW he ($2011). This cost is in the higher-end range that IRENA recently reported (IRENA, 2012, IRENA, 2013).

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IN SOLAR ...

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