# Effect Of The Solar Tracking On The Performance Of A Cylindrical Parabolic Concentrator

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**Abstract**

Algeria, which has an exceptional solar potential with over 3000 hours of sunshine and an area of 2.381.745 $Km^2$ decided to implement a strategy to develop various applications of solar energy and in particular the solar concentration systems to generate electricity and that will be profitable to the southern regions. In this sense our interest has focused on the study of a parabolic cylindrical concentrator. CCPs are parabolic section mirrors that concentrate sunlight onto a focal line. A tube-shaped housing, in which a coolant circulates, is placed on this line focus. Solar tracking is useful, because very few collectors keep their surfaces facing the sun during the day. The function of the tracking system is to maintain the opening of the collector pointed in the optimum direction to minimize the angle of incidence. Which provides an albeit modest concentration, 20 to 80 times the radiation, and temperatures of about 400 °C. In this work, we intend initially to determine the components of solar radiation, the intercept factor and thermal efficiency by an inclined concentrator to the latitude and without solar tracking. Then in a second time, our attention will focus on the evolution of these same factors, with a solar tracking system. The results showed that in the case of an N-S polar axis collector, with tracking E-W, provides a very favorable effect on the optical performance, with a maximum of about 833 $W/m^2$ for the normal direct irradiation component, relative to the stationary case with a value of 744 $W/m^2$. And an efficiency of 27.4% to $11^h.75$, the same result as that of Ghardaïa research team, note still a slight difference due to unavoidable losses in the real situation that is 26.9%. Therefore solar tracking shows better efficiency.

**Keywords:** Solar tracking, thermal balance, cylindrical parabolic concentrator.