Analysis of the energy demand of the Chilean mining industry and its coverage with solar thermal technologies

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Resumen

The mining industry represents more than half of Chile’s foreign exchange earnings and its increasing expansion will demand a continuous development of its energy supplies. Mostly, all the mines in Chile are located in the desert regions, having a large surface with one of the highest solar radiations levels and clearest skies in the world. Covering the mining industry’s energy demand with solar energy is thus an obvious and promising approach. In this paper, the implementation of solar thermal heating is studied in every mining process and the solar thermal electricity generation for the entire mine demand is considered as well. The work concludes that the installation of flat plate collectors to heat water for mine processes, especially for electrowinning, is strongly recommended. Additionally, the installation of solar thermal power plants can satisfy the mining electricity demand.

Palabras clave

Palabras clave de autor: Chile; mining industry; solar energy; parabolic trough; flat plate collector

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