

New Conversion Factor for Concentrating Collector Statistics

A factor of 0.7 kWth per square meter of aperture collector area for the conversion of area to power for statistics on concentrating collectors is an essential step for international market statistics for new solar heat capacities. So far, the factor 0.7 kWth/m² is only used for non-tracking collectors, following a recommendation published by IEA SHC in 2004. However, sales of concentrating collectors are growing worldwide and also need a conversion factor to account for this dynamically developing market segment in global market statistics.

Scientists from the joint project on Solar Process Heat (IEA SHC Task 64/IEA SolarPACES Task IV) outline the application of the conversion factor for concentrating collectors in an [8-page Technical Note](#).

According to Dirk Krüger from the German Aerospace Centre and Peter Nitz from the Fraunhofer ISE, the two main authors of the Technical Note: "For some solar thermal systems, only the area and no power is specified. That's why this conversion factor is so important. We need the installed thermal power of all systems in kW or MW so that solar thermal energy is clearly visible in international statistics."

The Task experts jointly recommend using 0.7 kWth/m² "uniformly for the following concentrating collector types: single-axis tracking parabolic troughs and linear Fresnel collectors, as well as double-axis tracking systems such as parabolic dishes and Fresnel lens collectors. The conversion factor, however, is not meant to be applied to solar tower plants, as this technology was not checked and included in the assessment."

There is growing interest worldwide in solar heat solutions providing more than 100°C. In 2022, already 16% of the collectors installed for solar process heat were concentrating variants. The market will see strong growth in the coming years as more multi-MW plants come online, like the two new systems for Heineken breweries in Spain with 30 and 3.5 MW systems and the 79.8 MW system in China for a tourist resort.

As noted above, this conversion factor is for calculations for market statistics.

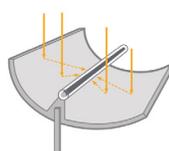
For more information visit the SHC Task 64 webpage, <https://task64.iea-shc.org/>.



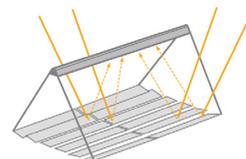
▲ Parabolic troughs used for preheating water at a tequila plant in Guadalajara, Mexico, installed by Inventive Power. (Photo credit: Inventive Power)

Collector Types: Tracking

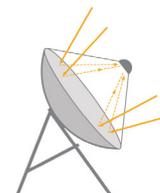
Linear or two-axis tracking:



Parabolic trough collector



Linear Fresnel collector



Concentrating dish collector

(Source: Solar Payback)