

Concentrating Solar Thermal technologies: A reliable player to the global energy transition

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Summary:

Concentrating Solar Thermal (CST) technologies use mirrors to reflect and concentrate sunlight onto a receiver. The energy from the concentrated sunlight heats a high temperature fluid in the receiver. This heat - also known as thermal energy - can be used to spin a turbine or power an engine to generate electricity. It can also be used in a variety of industrial applications as direct thermal energy supply, like water desalination, enhanced oil recovery, food processing, chemical production and mineral processing.

This technology has been intended traditionally to generate power to be injected into the grid through utility-scale plants located in remote landscapes. Nevertheless, the current efforts to carry out a quick and smooth energy transition are focusing in the use of CST in new, innovative ways:

- as energy storage to generate electricity at night,
- as a source of direct thermal energy for industrial processes where it is necessary,
- as a backup for other renewable technologies through hybrid schemes

All these options will be reviewed, discussing their degree of maturity and their potential contribution the global energy transition.