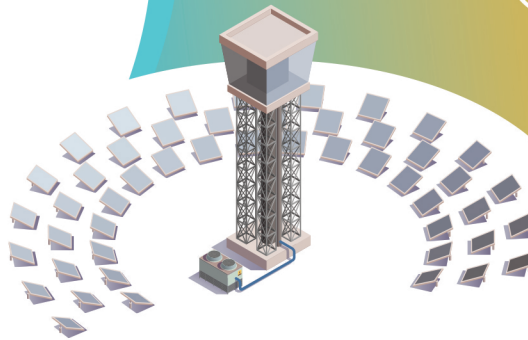


Solar Thermal Electricity (STE)



HORIZON
STE

THE FUTURE OF SOLAR
ELECTRICITY ON DEMAND



HOW STE WORKS

Example of a CSP Tower Power Plant

Solar thermal electricity (STE) technologies, also known as concentrated solar power (CSP), use mirrors to concentrate the sun's heat onto a receiver for either, driving traditional steam turbines or engines that produce electrical power, or using it (the heat) directly for industrial processes.

1. HELIOSTATS

Large mirrors track the sun and concentrate sunlight onto a receiver.



2. RECEIVER (TOWER)

Inside the receiver, the reflected energy is absorbed to heat up a heat transfer fluid, such as molten salts, to around 600°C. Molten salts also serve as a sensible-heat storage medium.

3. THERMAL STORAGE SYSTEM:

A. COLD TANK (YELLOW)

Molten salts, at around 300°C, are pumped from the cold molten salt tank up to the receiver.

B. HOT TANK (RED)

The hot molten salts coming from the receiver are stored in the hot tank before being pumped to the heat exchanger (steam generator), as required. The plant can continue to operate even when the storage is full.

4. STEAM GENERATOR

Hot molten salts are pumped from the hot tank to a heat exchanger, where water is turned into high pressure steam. The cooled-down molten salts are sent back to cold tank, ready to be sent up the tower to be heated again.

5. TURBINE

Like in other thermal power plants (coal-fired or nuclear), the steam is used to drive a turbine in a power block.

6. ELECTRIC GENERATOR

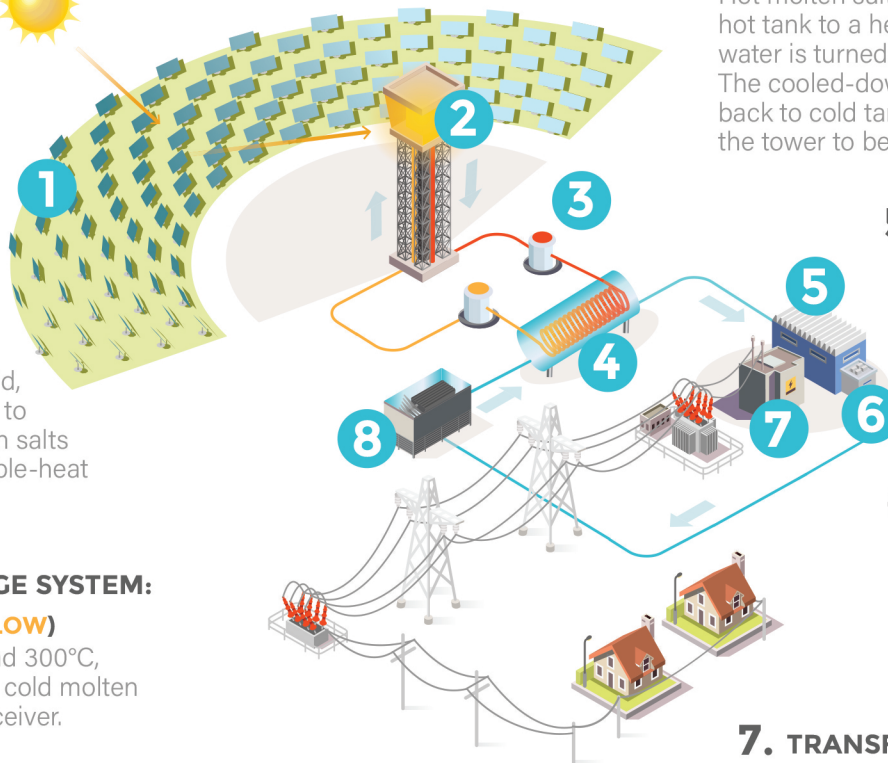
The turbine drives the generator, producing electricity.

7. TRANSFORMER

The electricity is then adjusted to the voltage level required by the grid, before it is injected into the distribution or transmission grid, and finally sent to household end-users.

8. CONDENSER

After running the turbine, steam is sent to the condenser before it is sent back to the steam generator.



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