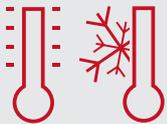


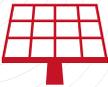


Temperature Maintenance and Freeze Prevention on

- Pipes, pumps, valves
- Tanks, silos, facilities



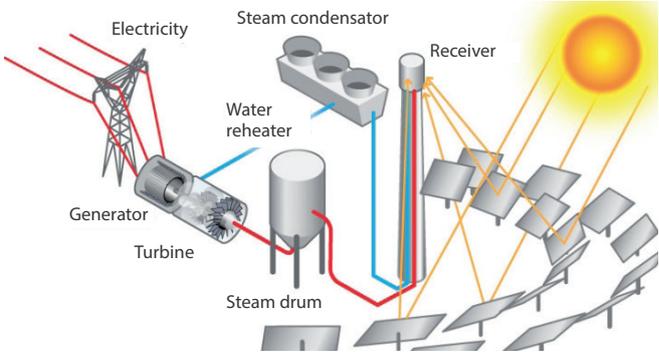
So the Sun can Plug in to Power



The average annual solar radiation in the Moroccan desert lies at 2.635 kWh/m², the highest in the world. Not surprisingly, one of the world's largest concentrated solar power plant is NOOR III, located between the Atlas Mountains and the Sahara in Morocco, covering 10.800 m². It has a capacity of 150 MW and 7.5 hours of full energy production. By the way: Noor means "light" in Arabian.

The 240 m NOOR III tower stands in a field of biaxial heliostats. Sunrays are reflected from the heliostats to the receiver at the top of the tower.

In order to transport, store and convert this solar energy to power, molten salts must be heated to 550 °C and kept at temperature to prevent them from solidifying and thus clogging. **This occurs at +260 °C.**



How a tower/heliostat solar plant generates power

The Solar Power Plant in Operation

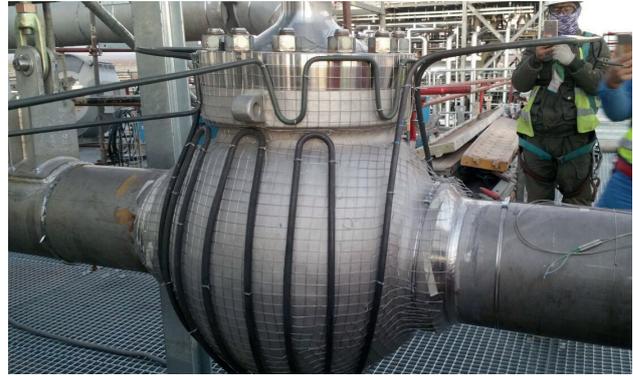


Left: The solar tower, onto whose receiver the sun's rays are concentrated.
Right: Several hundred meters of pipelines, storage and production facilities.

Source: eltherm Projects



Part of the NOOR III Teams in Ouarzazate, Morocco, from left: Paco Fernandez, Yassine Bzair (local), Neil DeBruyn.



Electrical heat tracing on a pipeline for molten salts that retain their optimum flowability at 550° C.

eltherm eHT makes Solar Power Possible

Desert nights are cold.

This is why not just the molten salts, but also carrier and synthetic oils must be held at 15 °C, water above freezing and condensation avoided, too. This is where the electrical heat tracing system performs its major task. Thus, electrical heat tracing fulfils its main task: to maintain temperatures along the entire process. This applies to a wide range of facilities and installations for production, transport and storage, on pipelines, tanks and silos. The eltherm team from all over the organisation joined forces to develop and finalise a complex electrical heat tracing solution in only three months. And as a turnkey provider, eltherm teams were required to supervise, train and manage the building, installation and commissioning phase all the way to start-up. This included an intricate power and control system based on the eltherm system TraceVision.

From engineering to commissioning:

- › 42 km ELK-MI AY825 mineral-insulated trace heaters with clean laser seal technology for temperatures up to 550° C
- › 760 specially developed resistance trace heaters
- › 110 km heating lines
- › 770 heating circuits
- › 28 control stations

eltherm Advantages:

- › Constant reliable temperature maintenance
- › Central control for safe operation
- › Energy efficiency
- › On-site support

Schematic view of electrical heat tracing on pipelines, valves and tanks

