

How CSP will behave under desert conditions?

.....fine!



Kuraymat /Egypt Nov 2007



Kuraymat/Egypt July 2009

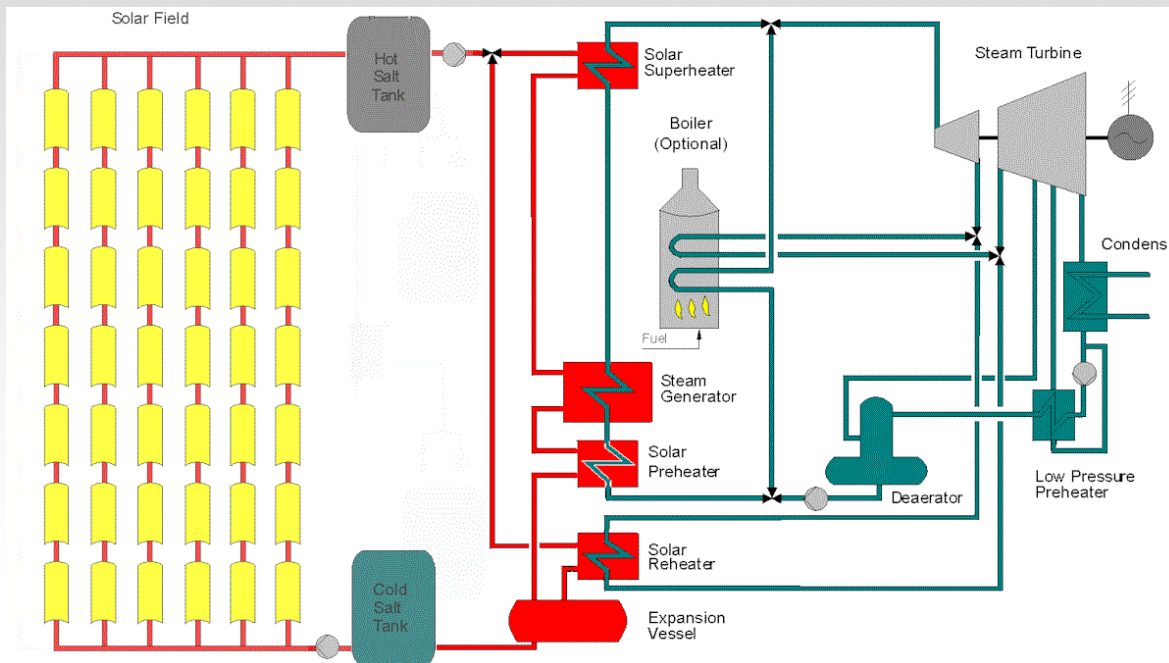
CSP in the MENA region

- Solar resource - excellent site locations can be found
 - high DNI
 - large, flat areas available close to populated centers
- High ambient temperatures
 - no negative impact on collector performance
 - 25 years positive operation experience in Mojave Desert (CA)
- Water scarcity
 - Air-cooled condenser for power block
 - “Anti soiling coating” for mirrors to reduce washing cycles under testing
- High local content already in first plant possible
 - Collector metal support structure for Kuraymat project was locally sourced
 - on site assembly line for trough collectors
- New collector designs under development
 - UltimateTrough Collector solar field will be about 25% less costly compared to a EuroTrough Collector solar field (Prototype completed; Test loop commissioning summer 2012)
- Molten salt trough systems
 - Successful operation of molten salt loops in the Archimede Project in Priolo Gargallo
 - Siemens is going to built a molten salt test loop in Portugal



Cost reduction - more and faster Technology development required

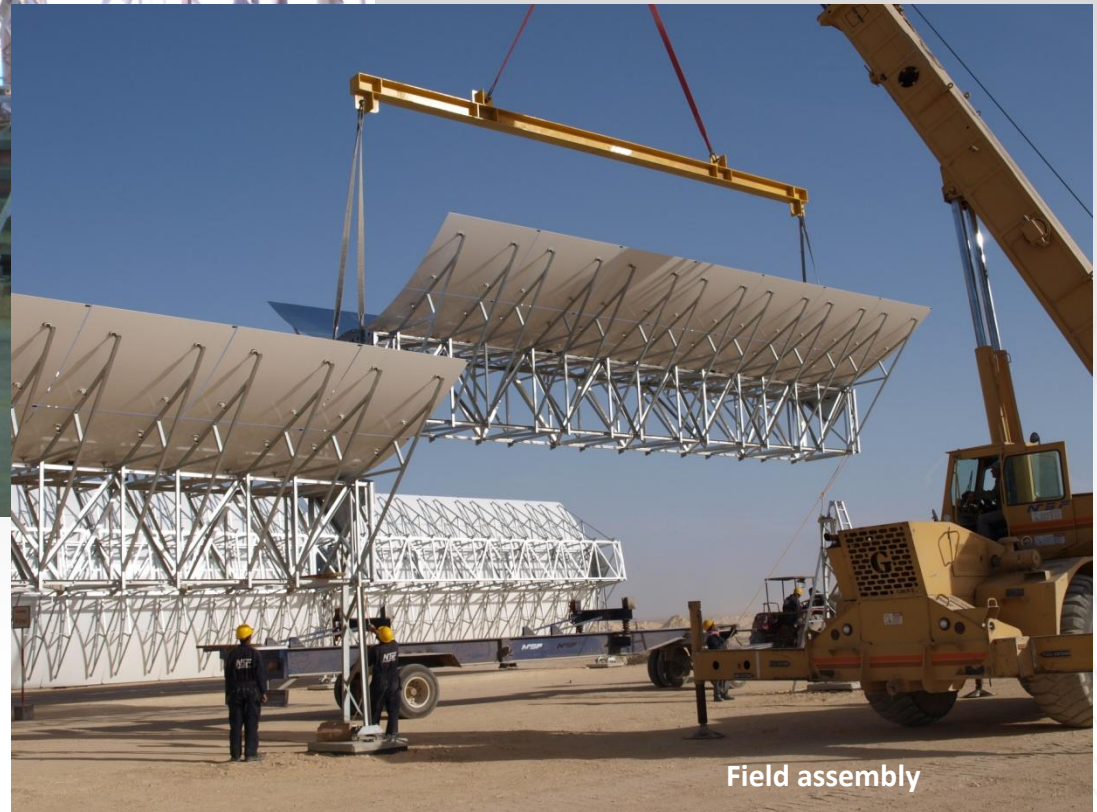
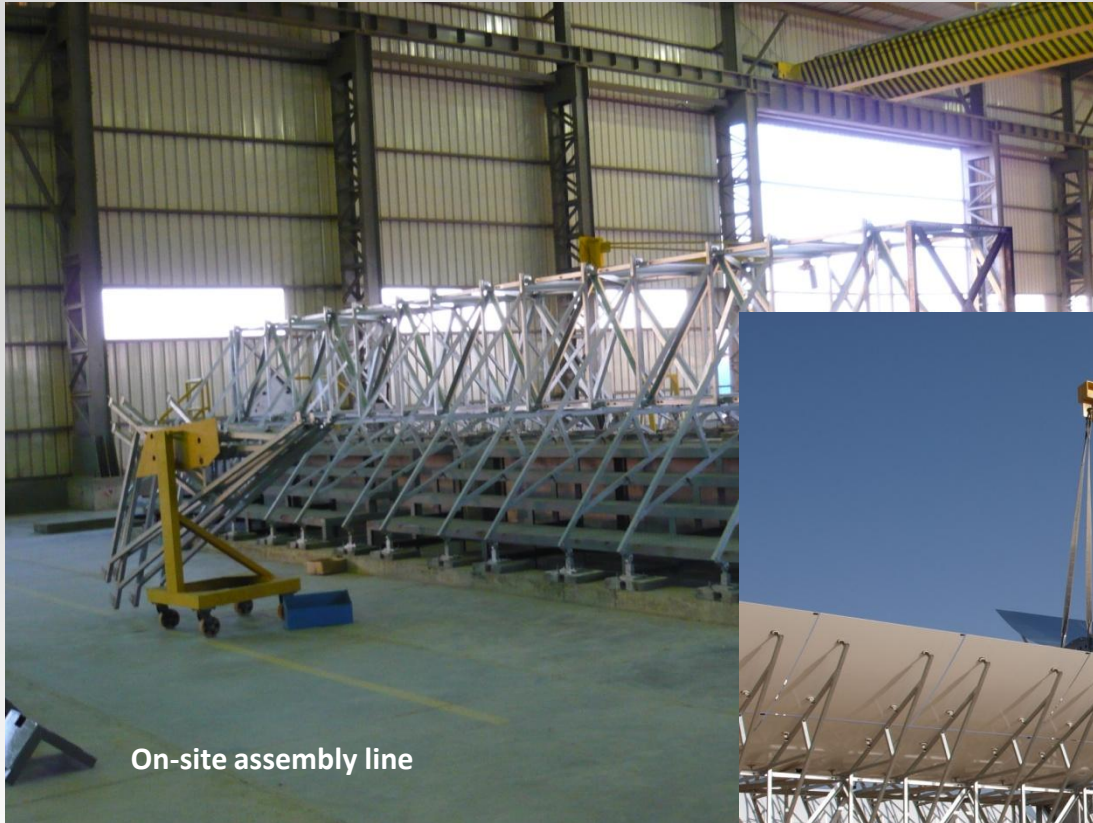
- Heat transfer fluid on a **molten salt** basis will allow for operating temperatures of about 540 deg C -> increases efficiency by 5 - 10%
- As steam conditions are the same as in conventional plants, same standardized cost efficient power island designs can be utilized
- Cost for thermal storage systems will go down by more than 50% due to the increased delta T between the hot and the cold tank.
- Time of electricity generation independent from time of “earning” energy from the sun



- *CSP Technologies:*
 - *need for more and faster development*
 - *standardization required for HTF system, power block, storage*

.....not only for projects in the MENA region

Kuraymat project



A successful start...

....to be continued

Thank you for your attention!



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