

# SOLARRESERVE



## Brief Status and R&D Directions, IEA Roadmap Meeting, Paris

February, 2014



# SolarReserve Develops Both PV and CSP



**Fixed Tilt Photo  
Voltaic Panels (PV)**

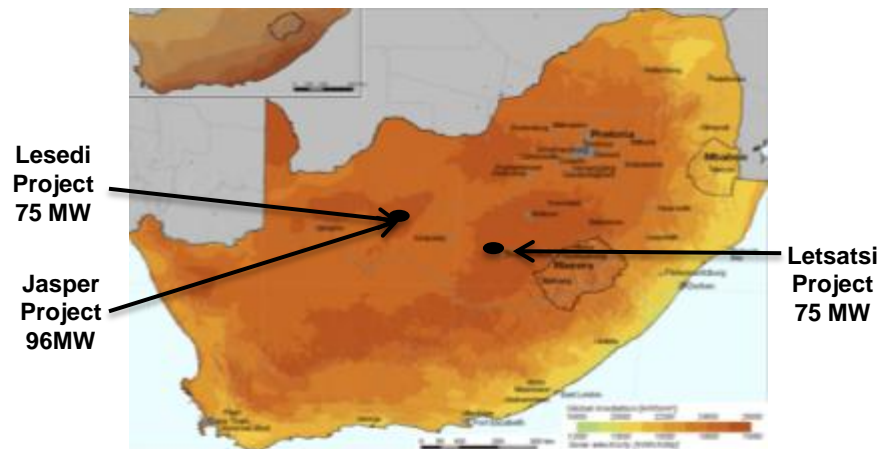
**SolarReserve's Molten  
Salt Power Tower**



# South African PV Projects – Three Projects (246 MW)

- \$586 million (ZAR 5.15 billion) Lesedi and Letsatsi projects financed in November of 2012 – two of the largest project finance transactions completed in South Africa
- \$230 million (ZAR 2.3 billion) Jasper project financed in May 2013
- Lesedi & Letsatsi transaction named “African Renewable Energy Deal of the Year” by Project Finance Magazine in 2012

## Site Overviews



### Annual GHI:

- 2,225 kWh/m<sup>2</sup> (Lesedi)
- 2,199 kWh/m<sup>2</sup> (Letsatsi)
- 2,225 kWh/m<sup>2</sup> (Jasper)

### Optimally Inclined GHI: 2,400- 2,800 kWh/m<sup>2</sup>

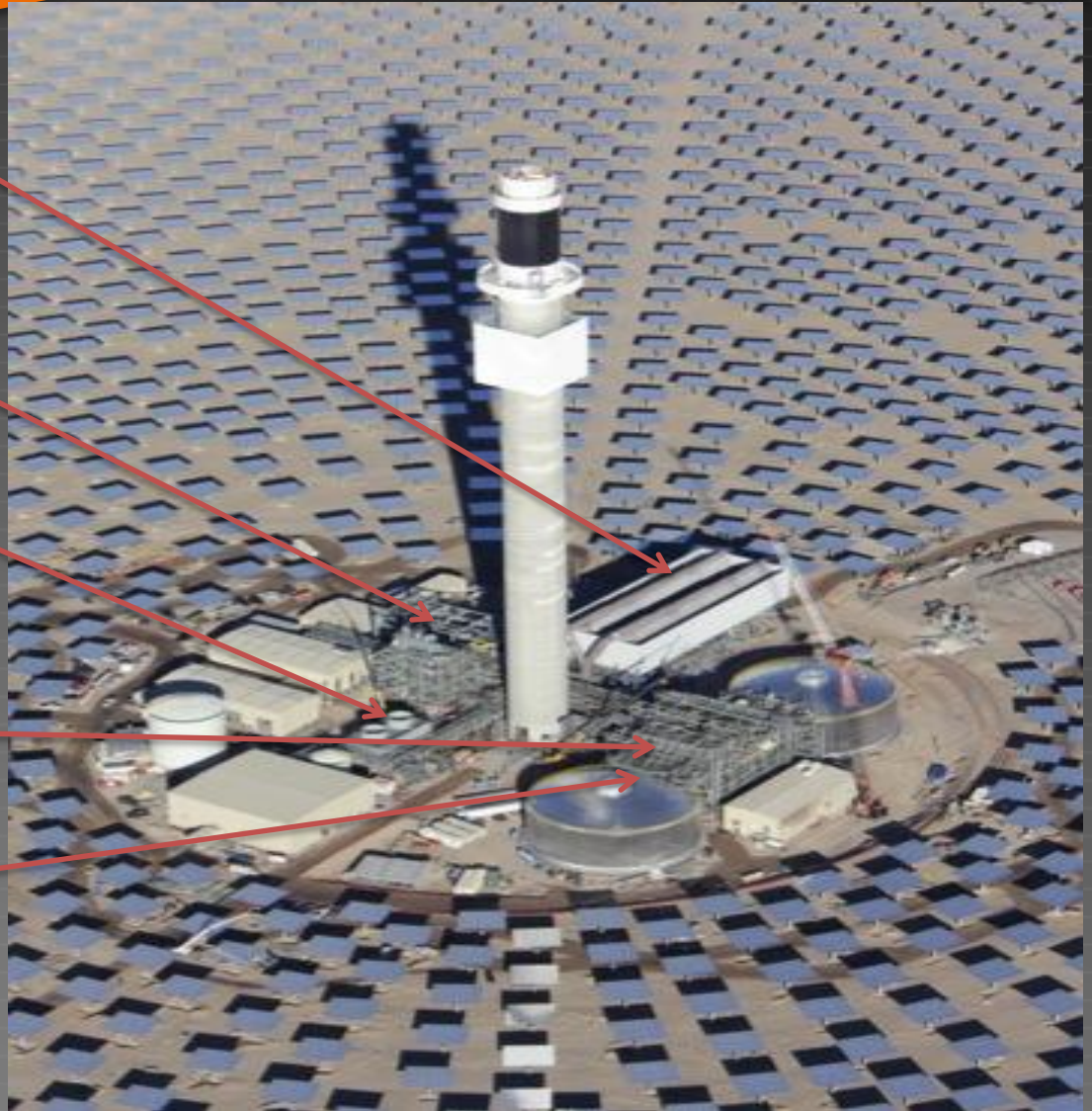
### Other Attributes of Sites:

- Elevated sites up to >1500m asl
- Low speed seasonal winds and humidity
- Close to grid with minimal losses
- Highway access
- Access to water

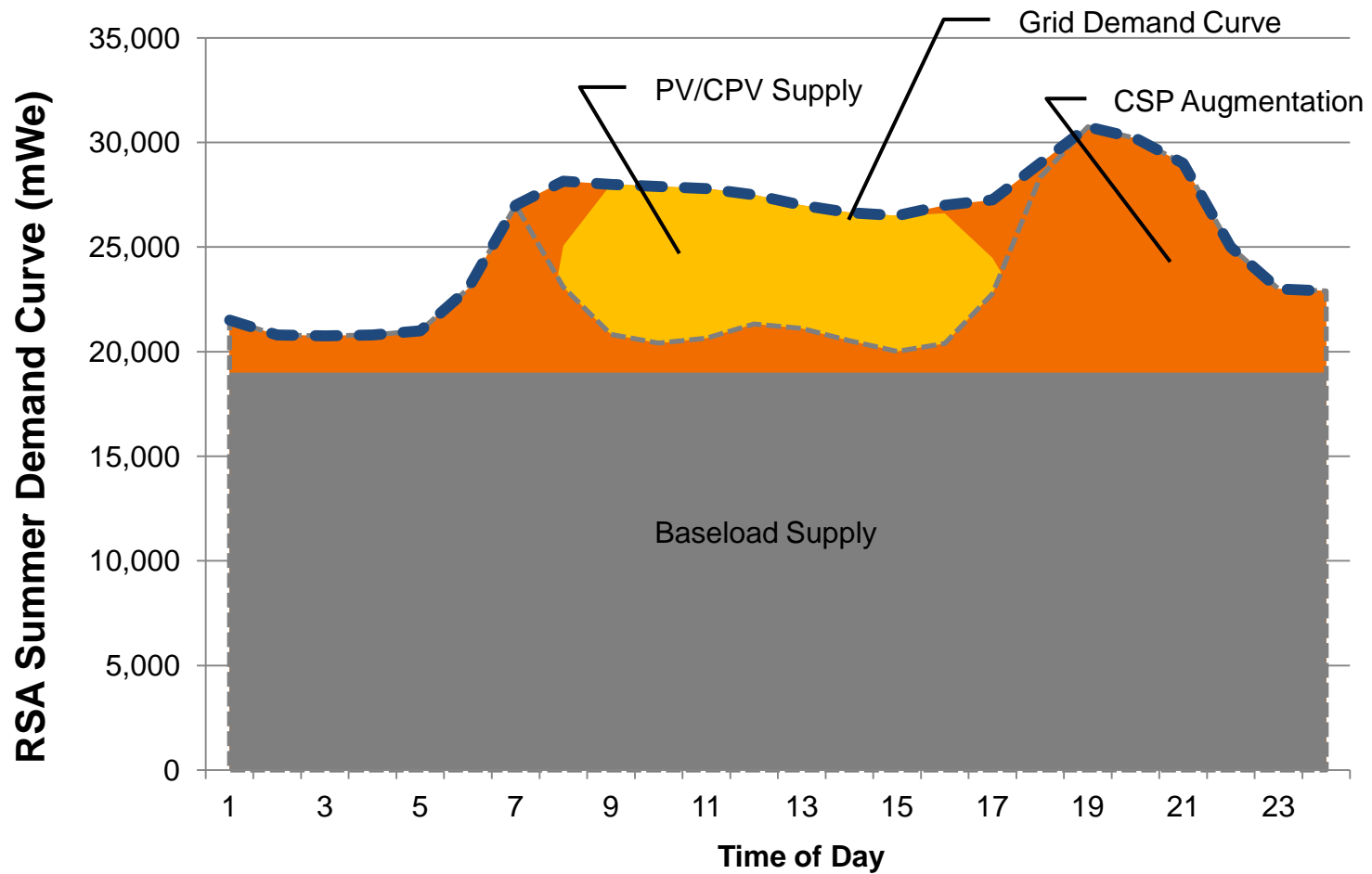


# Crescent Dunes Equipment Layout

- Dry Cooling Tower
- Turbine Generator
- Wet Cooling Tower
- Steam Generator
- Salt Pumps



# Winter Demand Curve, South Africa

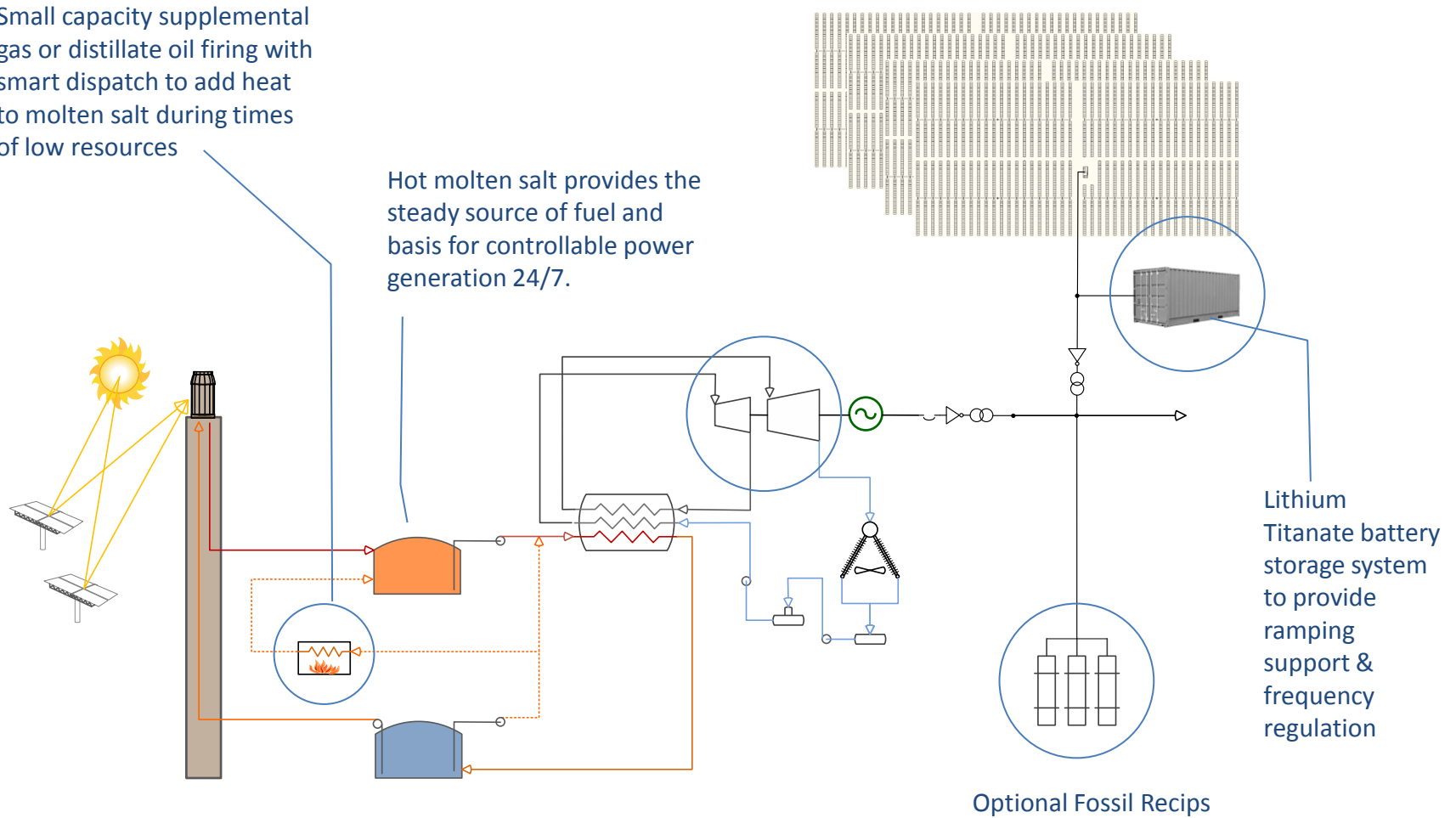


# Hybrids Enable 100% Availability

Small capacity supplemental gas or distillate oil firing with smart dispatch to add heat to molten salt during times of low resources

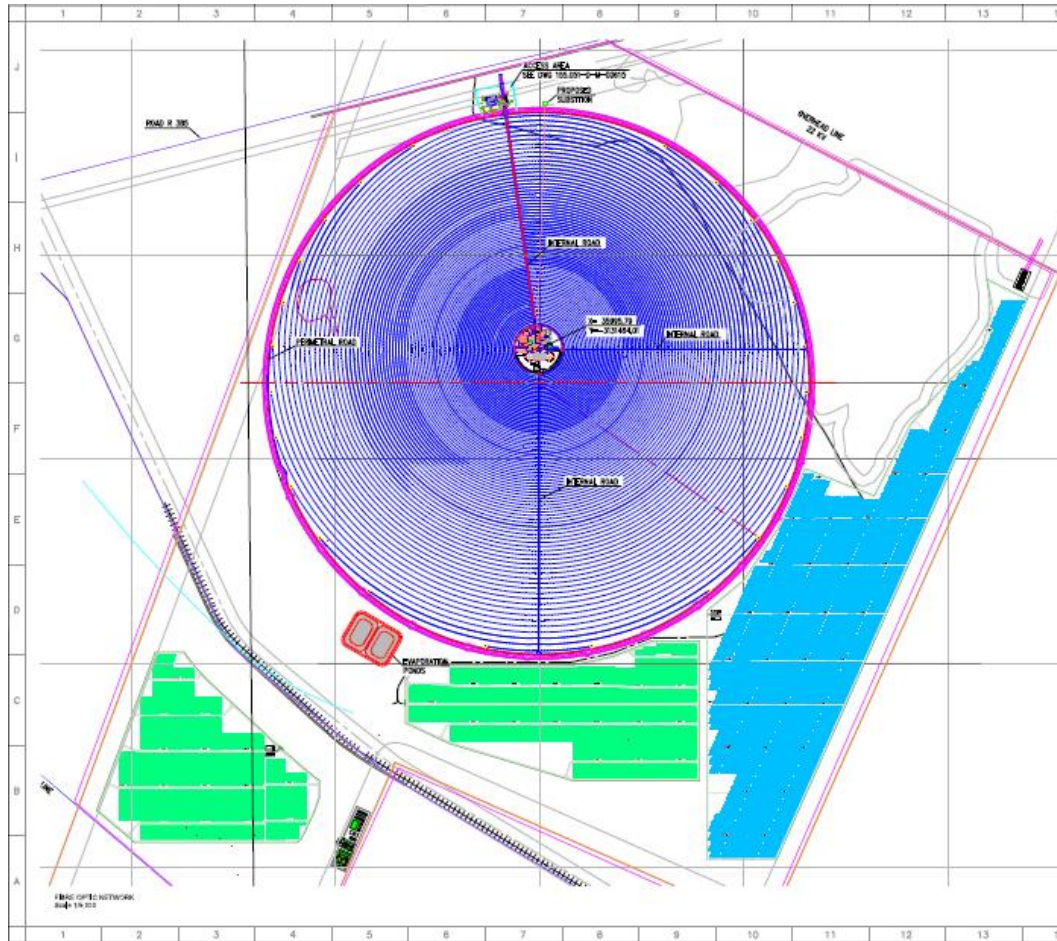
Hot molten salt provides the steady source of fuel and basis for controllable power generation 24/7.

PV system to provide low-cost daytime generation



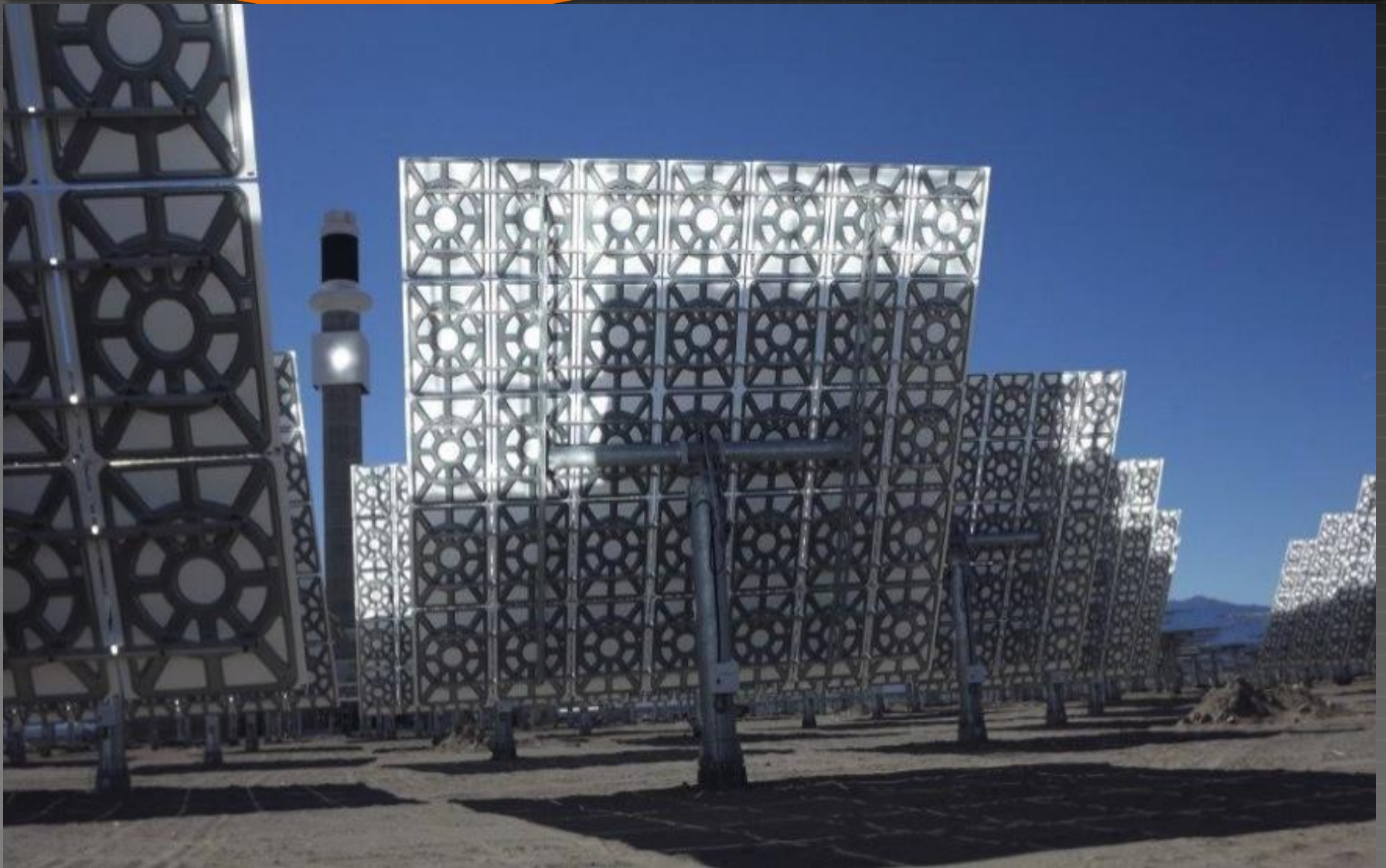


# Real World Hybrid Project



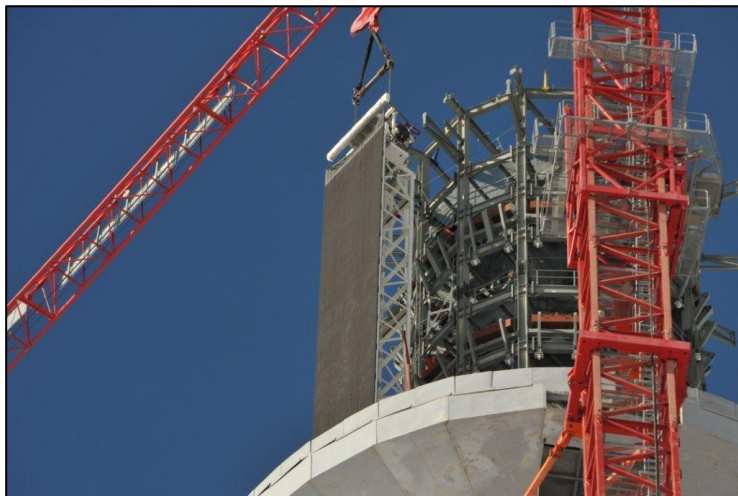
Lesedi and Jasper (PV) and Redstone (CSP)

# Heliostat Testing on BCS Target





# Receiver Installation



# Crescent Dunes Heliostat Field 80% Complete

