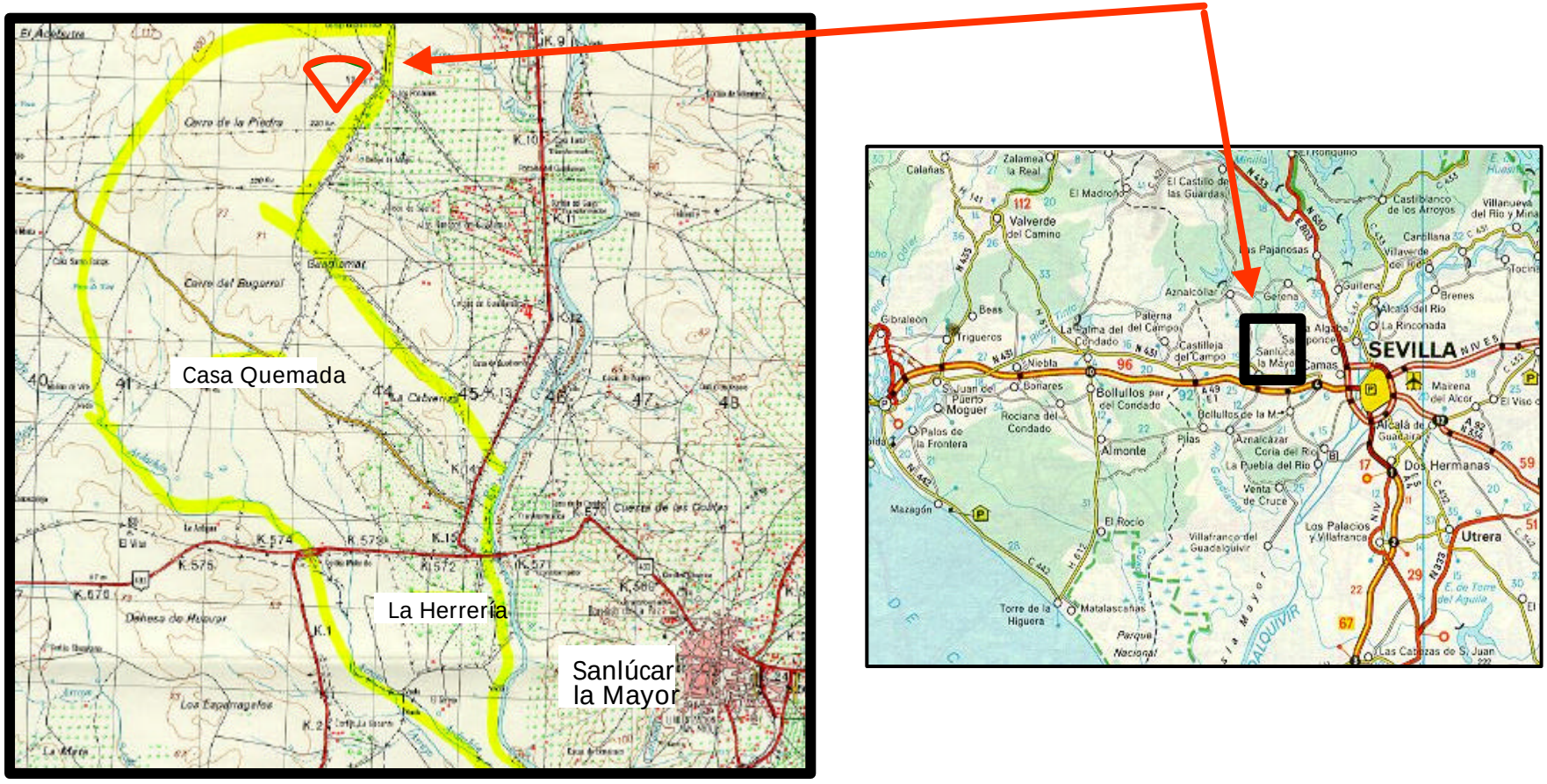
PS10

Sanlucar Solar Project

SANLUCAR SOLAR

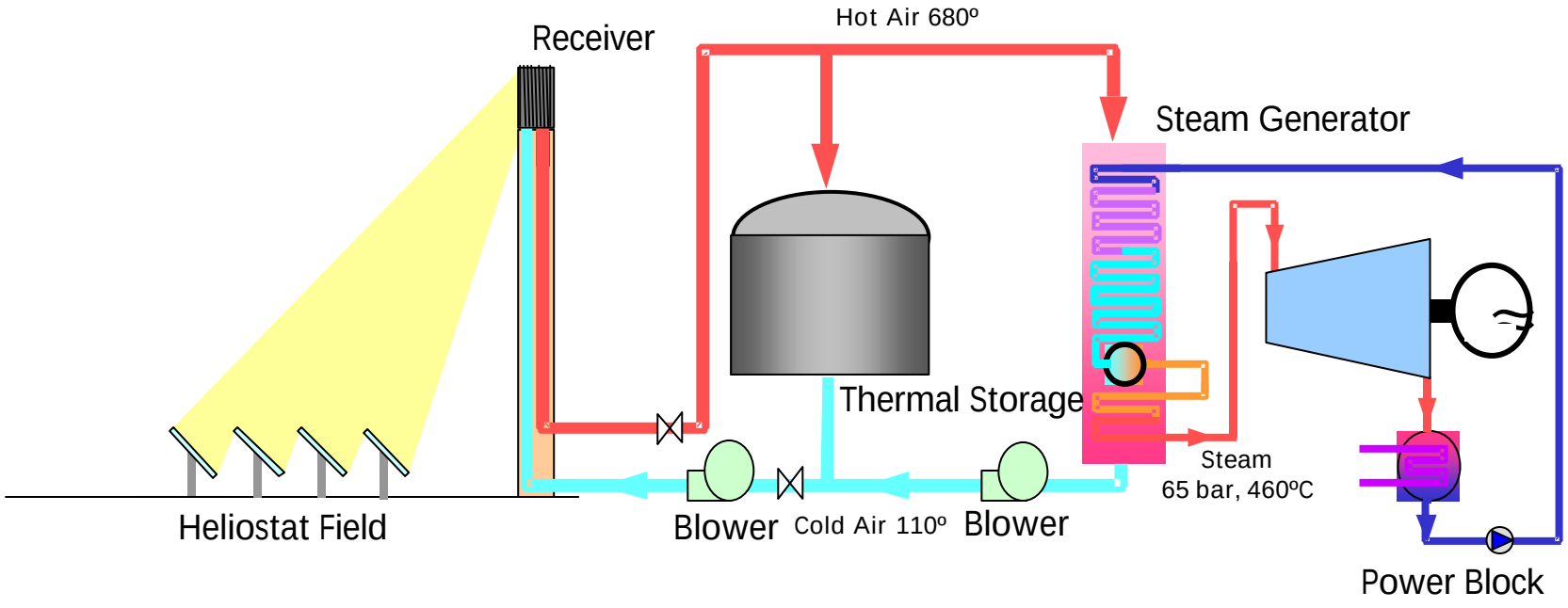
PS10 Site in Sanlúcar la Mayor



PS10

Tower and Heliostat Fields Central Receiver Systems

Phoebus Air Technology



The PS10 Project

General Characteristics of PS10 solar plant

Tower Height	90 m
Heliostats Number	981
Heliostat Reflective Surface	91 m^2
Total Reflective Surface	90000 m^2
Thermal Power	50 MW_{th}
Electric Power	10 MW_e

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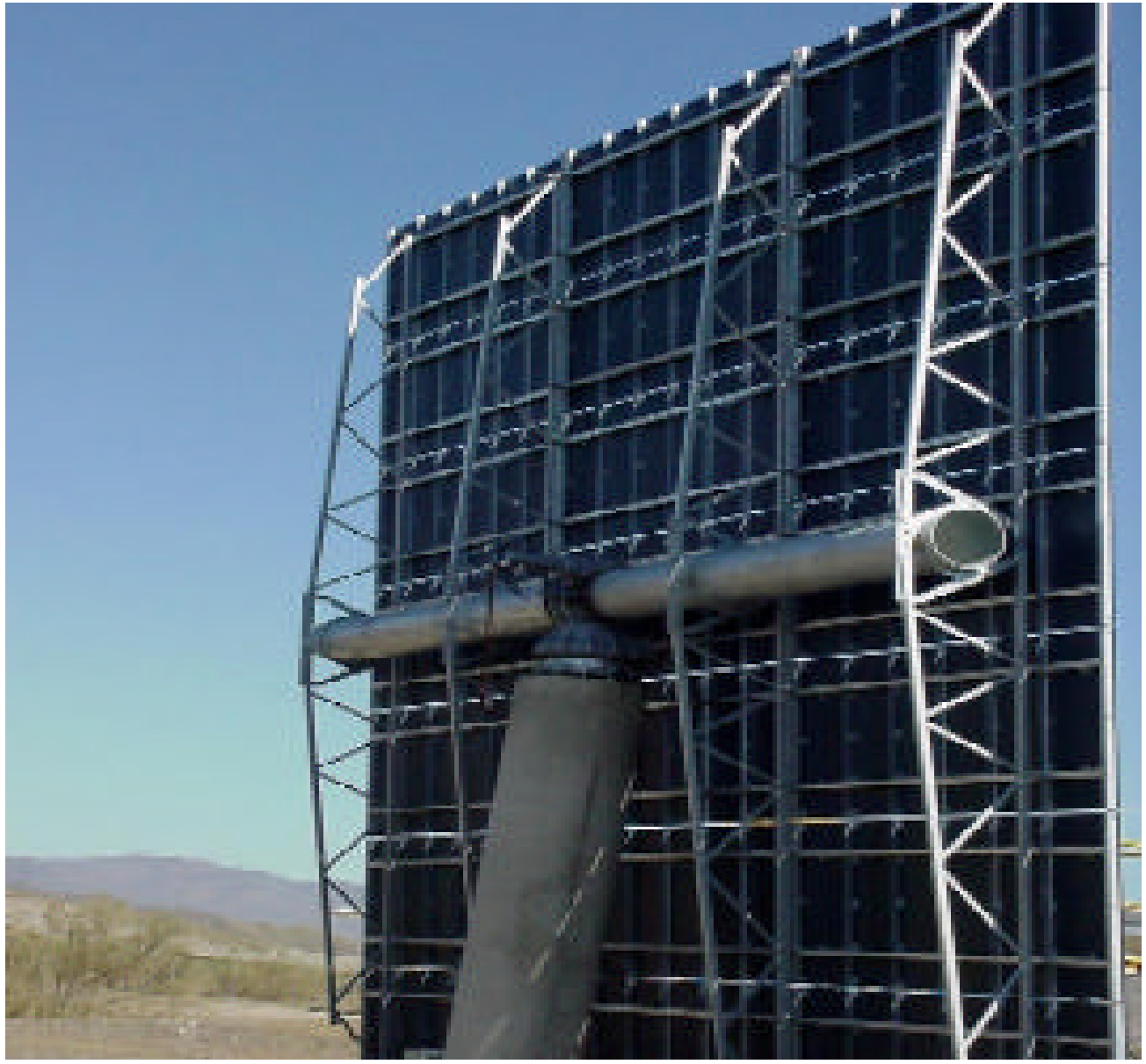
The Heliostat



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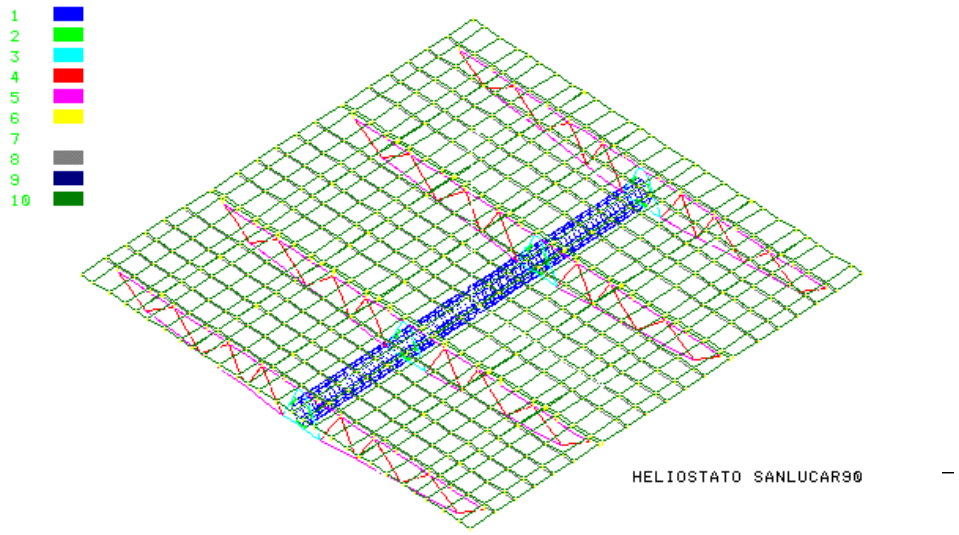
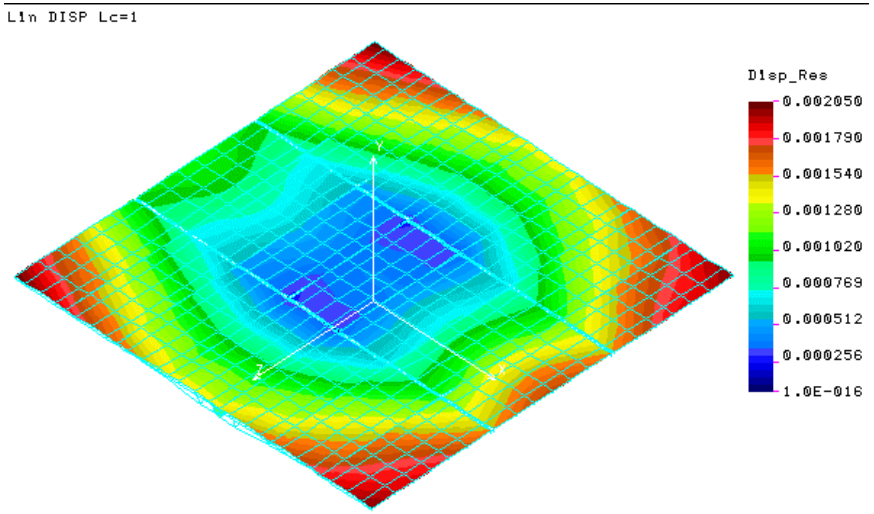
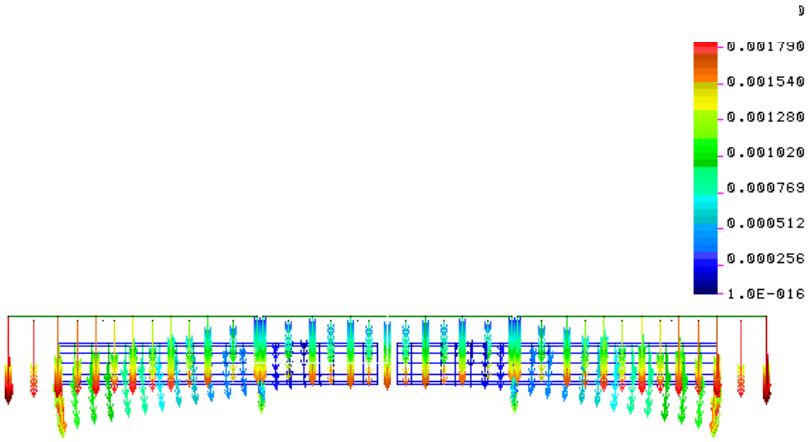
The Heliostat Engineering and Designing







Designed with Finite Elements Tools

- Spherical/Paraboloid Shape
- High Precision For Concentrating
- High Precision for Aiming

The Heliostat Drives

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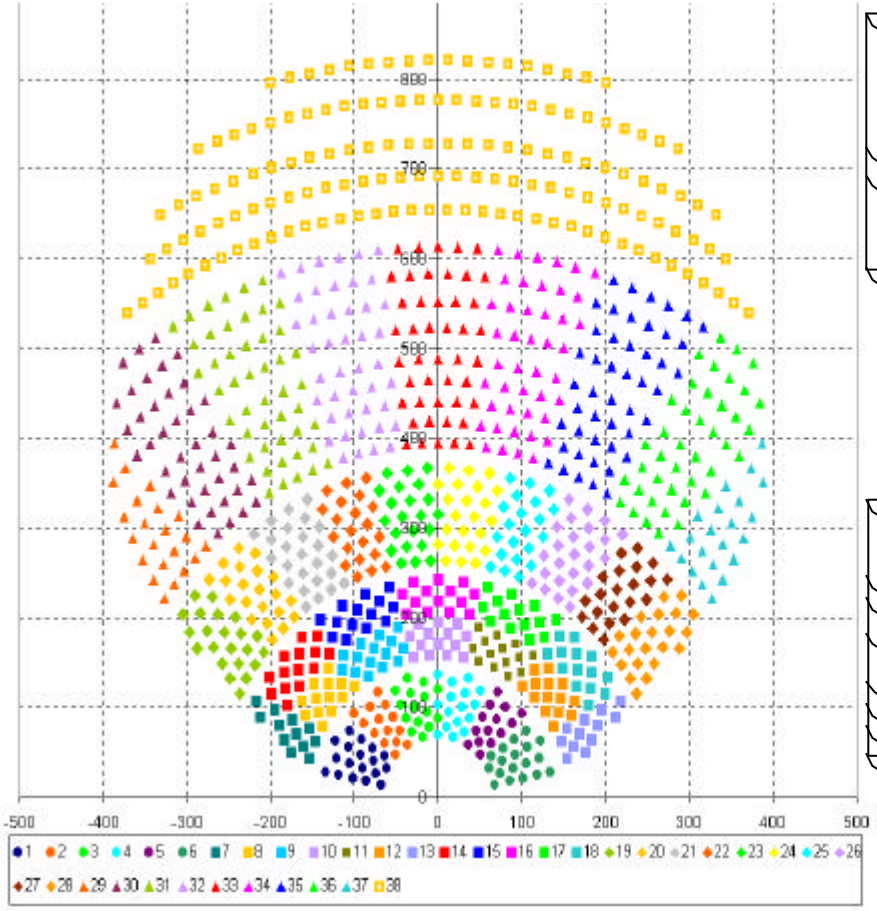

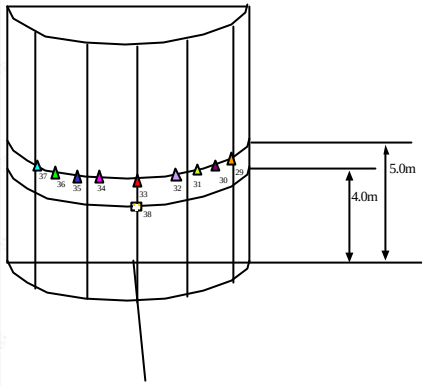

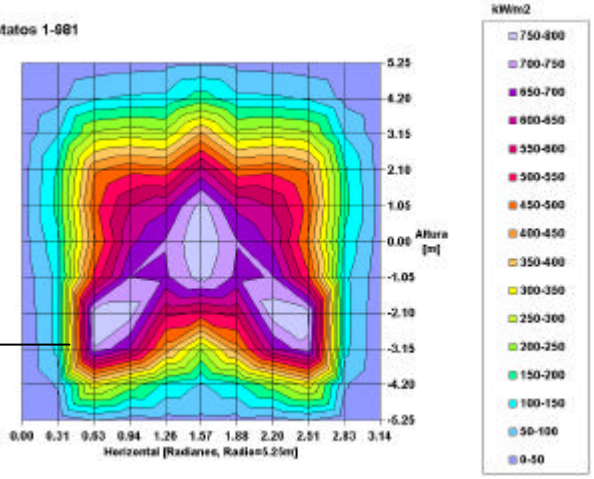

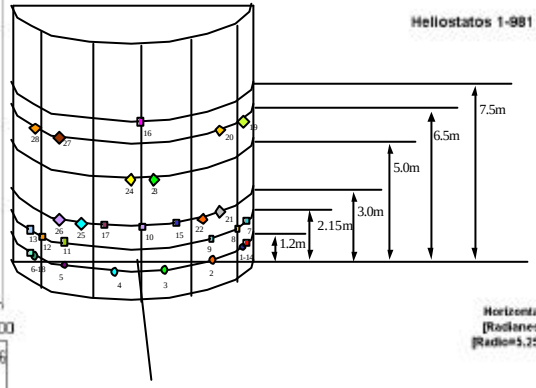

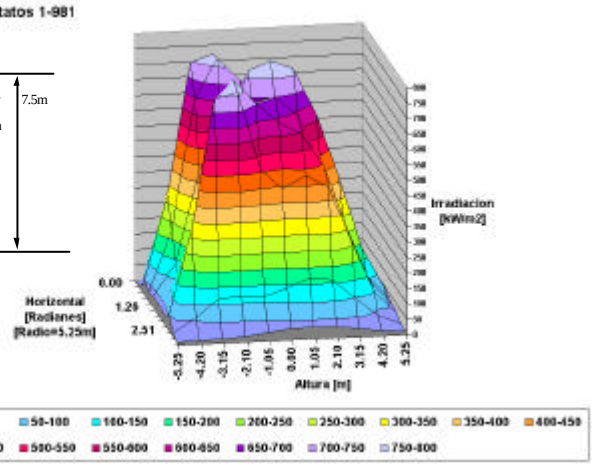

PS10

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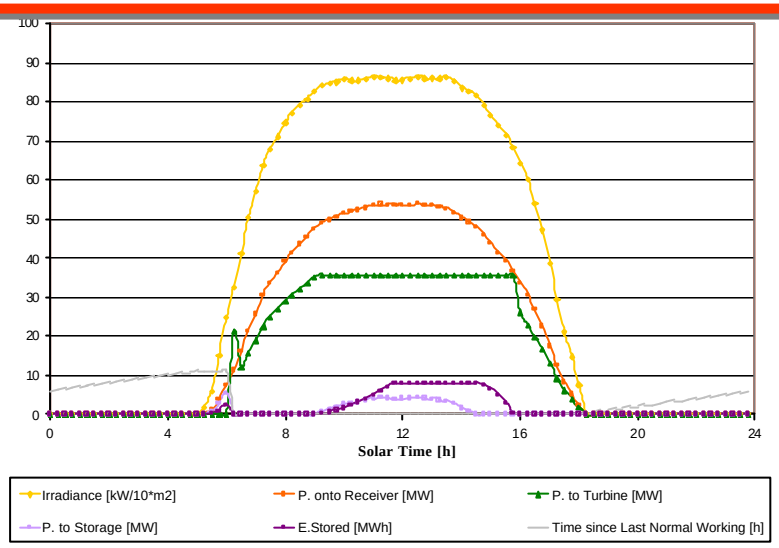
ANNUAL BALANCE	
ENERGETIC RESULTS WITH 30 MWh STORAGE	
Annual Energy onto Reflective Surface [GWh]	183.5
Annual Efficiency of Heliostat Field	0.647
Gross Energy onto Receiver [GWh]	118.7
Receiver+Air Circuit+ Full Storage Defocus +Storage Efficiency	0.614
Gross Energy to Working Fluid [GWh]	72.90
Thermal->Electric Efficiency	0.303
Gross Electric Energy [GWh] (*)	22.09
Net Electricity Output [GWh]	20.00

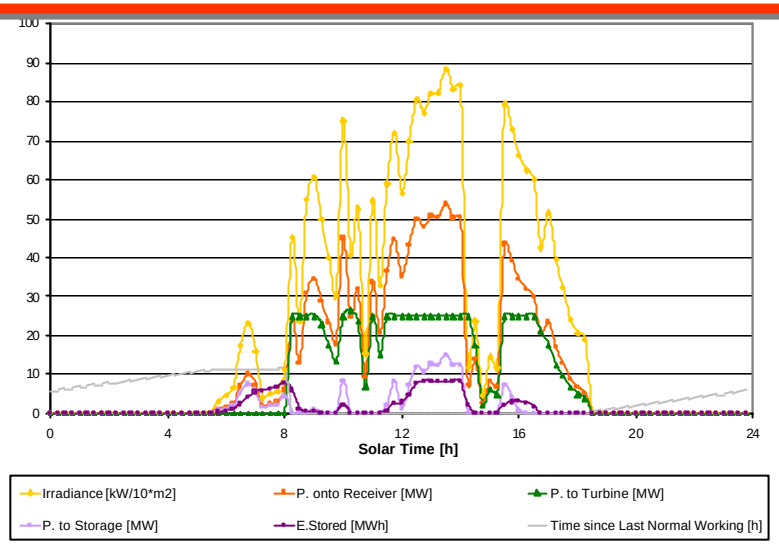
12.1 % net

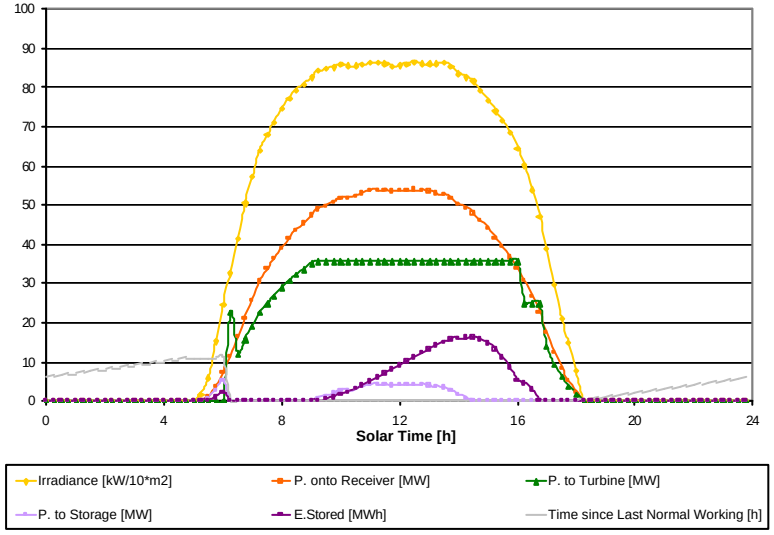
Efficiencies

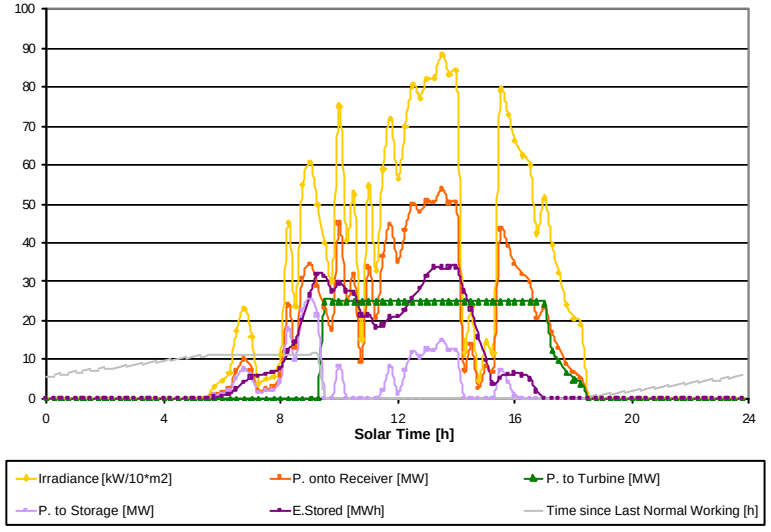
PS10

SANLUCAR SOLAR





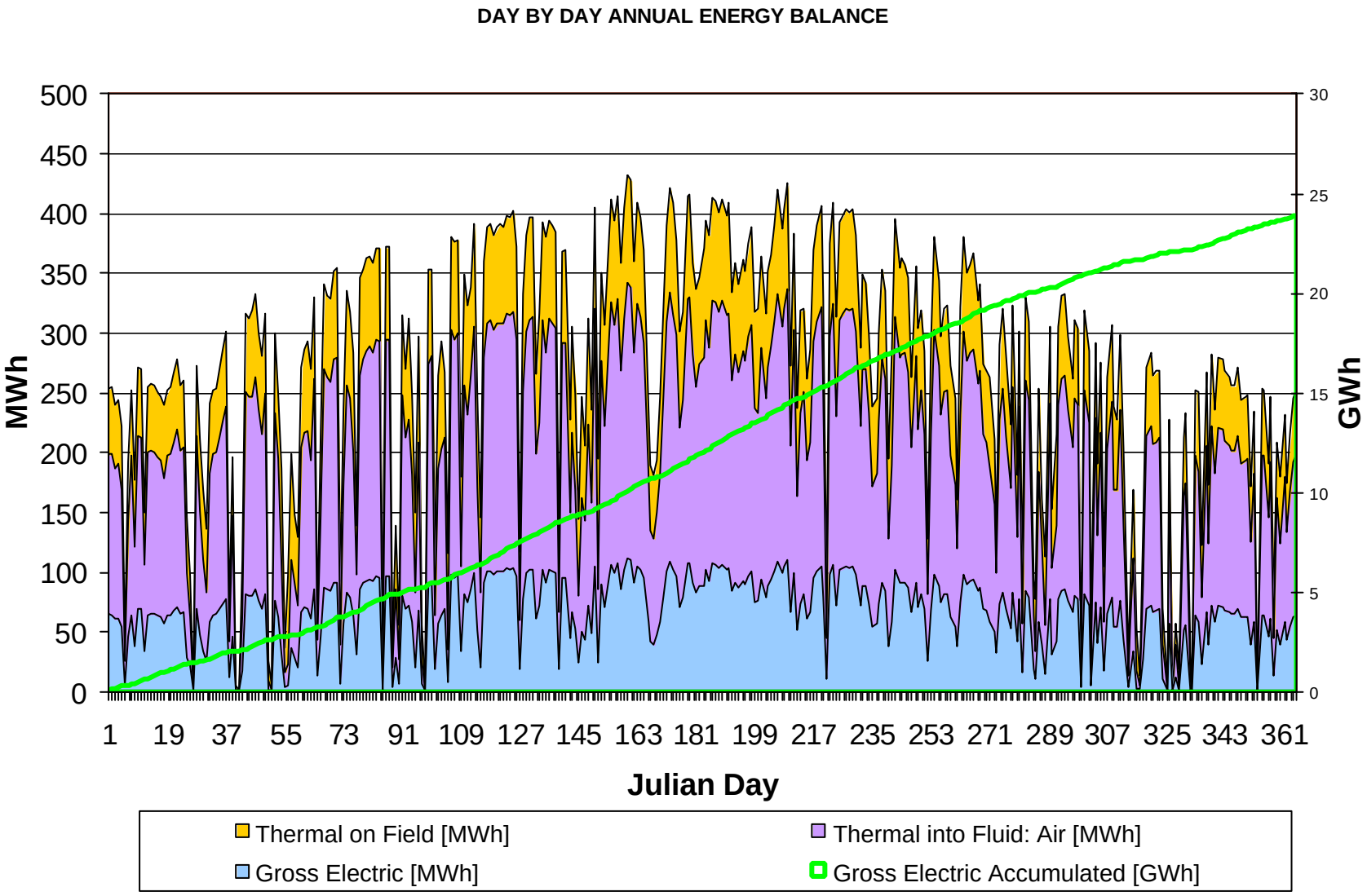




Good Day Storage Performance

Bad Day Storage Performance

SANLUCAR SOLAR



PS10

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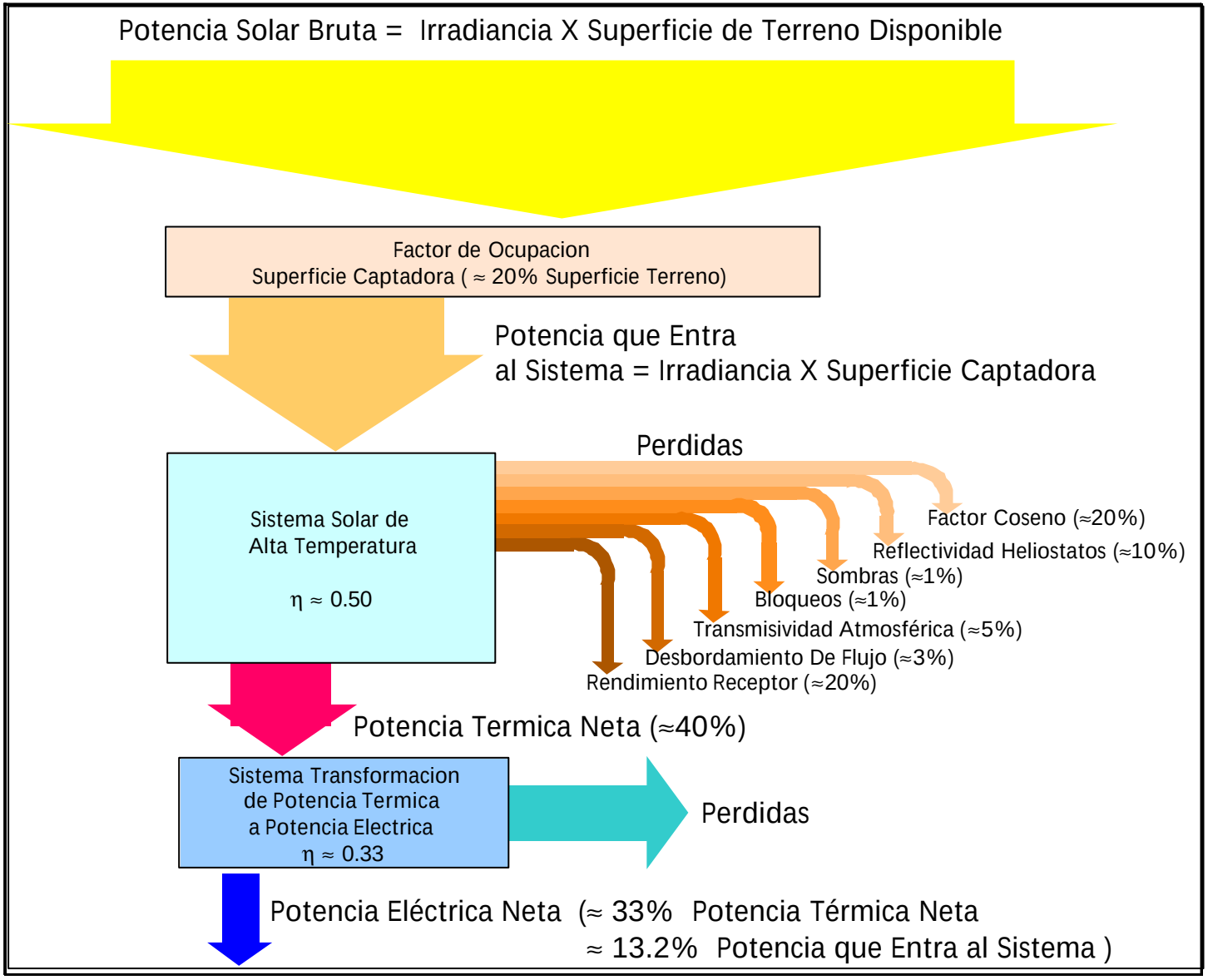

SANLUCAR SOLAR

UE - Consortium:

Inabensa (Solúcar), Ciemat, DLR & Fichtner.

IPP Company: **Sanlúcar Solar, S.A.**

EPC Company: **Solúcar.**

Main Suppliers:

- **Babcock Borsig Power: Receiver, Thermal Storage & Steam Generator.**
- **Abener: Conventional Plant.**
- **Sainco: Control System.**
- **Inabensa: Heliostats field.**
- **Engineering, Supervision & Evaluation: Ciemat, DLR & Fichtner.**

PS10

SANLUCAR SOLAR

Financing: Mandate done.

Use of Water: Permit obtained.

Grid connection: Permit obtained.

Industrial Used of the Land: Permit obtained.

Administrative Licenses & Construction Licenses:

- Plant: Obtained

- 66KV Electrical Line : pending of M.A. and expropriations.

Royal Decree (premium KWh): 2 or 3 months

PS10