

Noor III Solar Project

Industrial facilities

2014



MOROCCO -
Ouarzazate

Client

ALSTOM POWER
SYSTEM

Owner

Agence marocaine de
l'énergie solaire, MASEN

Lead Designer

ALSTOM POWER
SYSTEM SA

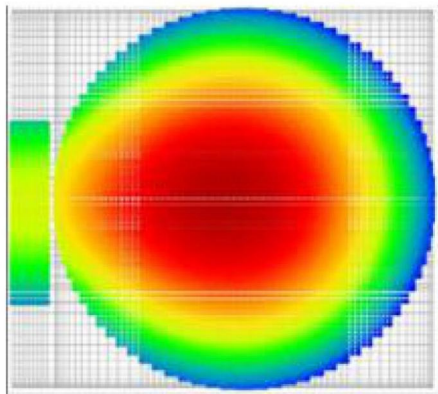
Highlights

Solar tower 225 m high and weighing 63,500 t

Foundation raft 36 m in diameter and 6 m thick

2 tanks representing a load of 37,500 t (37 m in diameter and 15 m high)

A large number of heliostat supports



The Project

To reduce its dependence on fossil fuel imports, Morocco has launched a solar plan aiming to exploit its renewable energy potential. The Noor III project, part of this plan, will see the construction of a solar tower with an estimated capacity of 100 MW and storage capability. The plant is to be located in the southern foothills of the High Atlas, north-east of Ouarzazate, at an altitude of about 1200 to 1300 m above sea level.

As part of a consortium also including two American companies and one Japanese company, EDF and Alstom have been selected to design, finance, build, operate and maintain Noor III.

Key points of our missions

- Geotechnical summaries
- Design of shallow foundations in terms of bearing capacity
- Verification of settlements with respect to acceptable settlements
- Recommendations for the works

Our Services

The solar tower is 225 m high, 21.3 m in diameter at its base, and weighs about 63,500 tons. The foundation raft, anchored at a depth of 6 m, will be 36 m in diameter and 6.0 m thick.

The project also includes the production of a very large number of heliostat supports, and two molten-salt storage tanks (one cold and one hot), each 37 m in diameter, with a height of 15 m, a volume of 16,000 m³, and a load of about 37,500 tons.

As part of the civil engineering studies, ALSTOM POWER SYSTEMS SA contracted TERRASOL for the (basic and detailed) preliminary studies, in order to determine the calculation characteristics necessary for the design of the structures, based on the available geotechnical data. After this synthesis step, TERRASOL checked the dimensions of the shallow foundations in terms of bearing capacity and verified that the expected settlements remained acceptable.