



TURNKEY CONCENTRATED SOLAR PLANT

FOR STEAM AND ELECTRICITY PRODUCTION



SUNCNIM, an historical actor in CSP



ENIM

www.cnim.com 55%

bpi**france**

45% www.bpifrance.fr

- ▶ Over 50 years experience as EPC and O&M contractor of power plants
- ▶ One of the top European specialists on Energy-from-Waste and Biomass-to-Energy plants
- ▶ 160 waste to energy and biomass plants built in EPC in the world.



**Solar steam generator
with
Fresnel technology
Development, Design,
Construction,
Commissioning,
Operation & Maintenance**

- ▶ Bpifrance is a subsidiary of the state-owned Caisse des Dépôts, providing loans, guarantees and equity funding, as well as support services to underpin innovation, external growth and exports
- ▶ Acts as an equity investor in special-purpose companies for industrial development projects selected on the basis of their growth potential, the current status of the industry and their contribution to ecological and energy transition.

Concentrated Solar Thermal Plants for Steam and Electricity Production



SUNCNIM has the knowhow and experience of the overall solar project lifecycle.

- ▶ **Development** : project finance through an IPP scheme
- ▶ **Manufacture** of the entire solar field
- ▶ **Construction** in the framework of a **turnkey** contract provider
- ▶ **Operation** of the plant

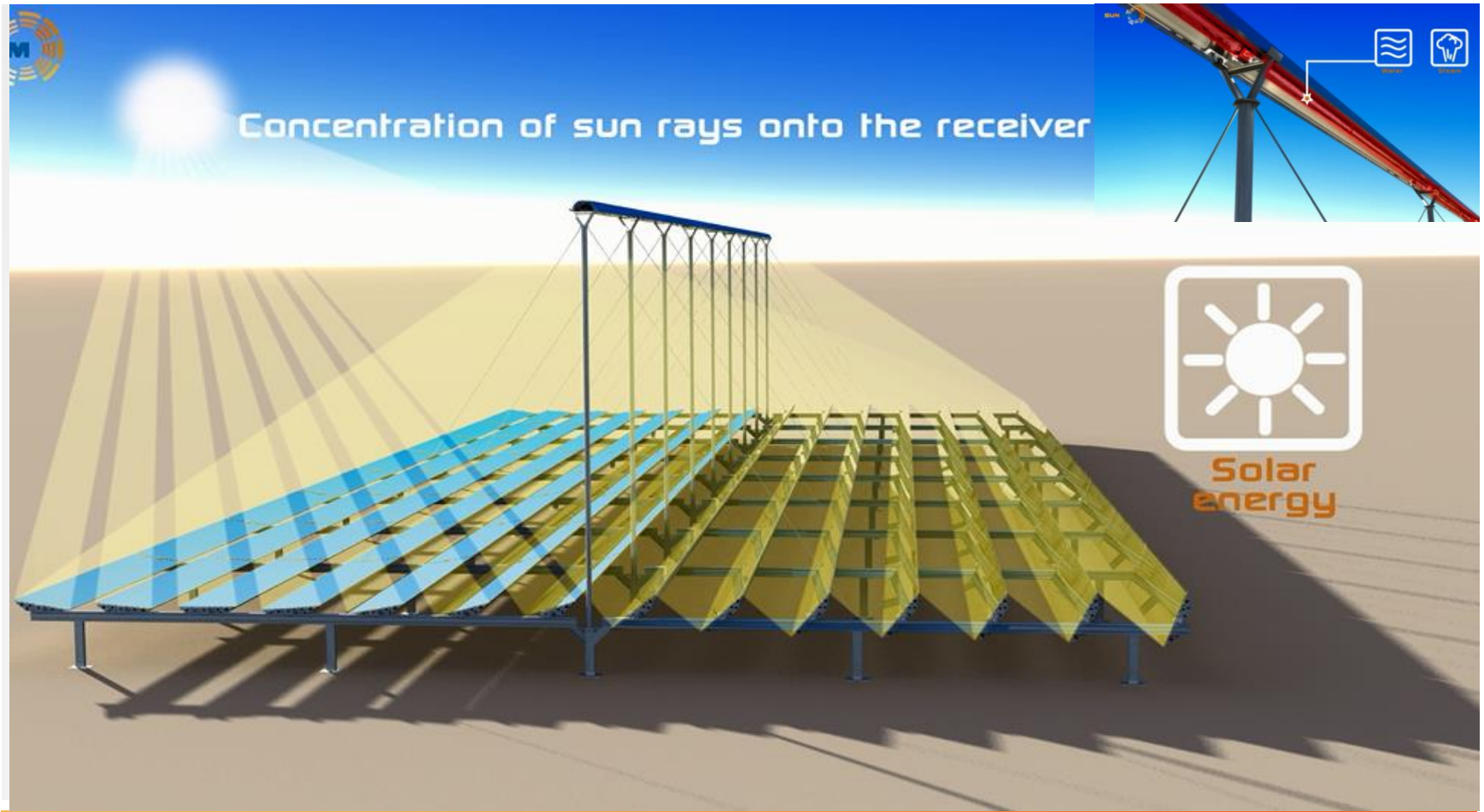
As a **main contractor**, **SUNCNIM** is in charge of:

- ▶ The overall project design, construction, commissioning and operation.
- ▶ The detailed design of the main elements of the plant using its own processes, in particular for solar field, heat storage, power block.



General Principle

Mirrors follow the sun's path throughout the day, concentrating the sun's rays onto a receiver. Water circulating in the receiver is then heated to generate steam.



Module Characteristics

One Solar Steam Generator module produces up to 500 kWth

- ▶ Direct Steam Generation
- ▶ Up to 100 bar a
- ▶ Up to 320°C

67m

Linear Receiver

Heliostats
14 rows

18m

Thermal performances verified by



Technological advantages



A solar technology simple, robust and cost effective



Simple modular conception



High local content



Automatic cleaning mirror robot



Low land usage



Lowest CapEx



Lowest Opex

Main Applications



1



Thermal Enhanced Oil Recovery

Steam injection to increase amount of oil extracted from an oil field

2



Industrial steam or hot water

Process steam for industrial consumers: food, mine, textile, chemical

3



Hybrid thermal power plant

Connection to an existing fossil fuel-fired power plant
Power booster or fuel savings mode

4



Solar Power Plant

Standalone or grid connected solar power generation

Projects

CNIM has built the 1st molten salts boiler worldwide for a Tower CSP plant



Projects



CNIM's 500 kWth solar module in automatic operation since 2010



Projects



1st commercial Fresnel with energy storage to produce 20 GWh per year



ENIM
Innovate and Act

bpifrance

SUNENIM

The logo for SUNENIM features the text "SUNENIM" in a bold, sans-serif font. The word "SUN" is colored in a gradient from yellow to orange, while "ENIM" is in blue. To the right of the text is a circular graphic composed of several concentric rings of segments, resembling a stylized sunburst or a circular grid. The segments are colored in shades of orange and yellow, with some segments missing, creating a fragmented, sun-like appearance.