

LA PREMIÈRE CENTRALE SOLAIRE COMMERCIALE EN FRANCE : ELLO



Table des matières

Le projet



SUNCNIM, an historical actor in CSP







- 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 stateowned 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 specialpurpose 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.

SUNCNIM





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



SUNCNIM's Offer



Concentrated Solar Thermal Plants for Steam and Electricity Production

- SUCNIM develops and supplies turnkey solar power plants, drawing on all of the Group's skills to offer the most innovative solutions;
- CNIM acts as a main contractor, providing turnkey concentrated solar power plants;
- CNIM also acts as a project developer and support financing;

As a main contractor, CNIM 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;
 - Recovery of thermal energy (thermal cycles).



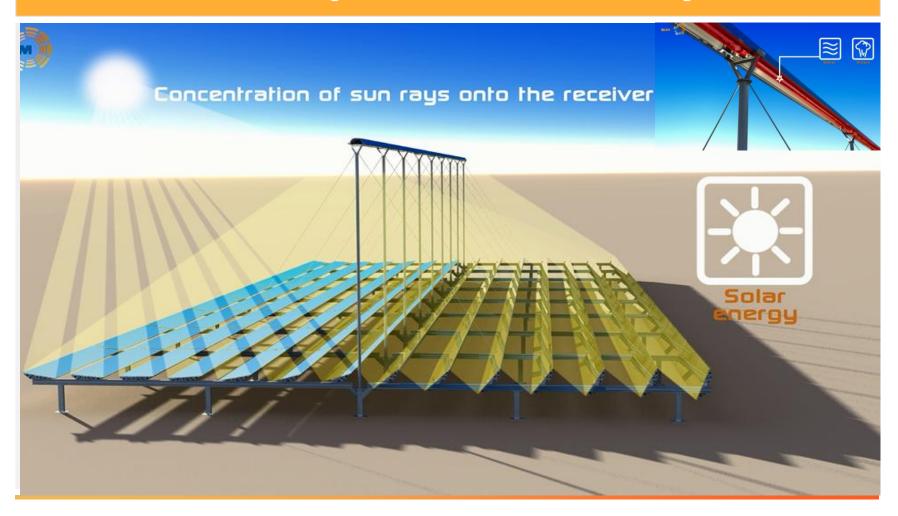




General Principle



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.



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

SUNCNIM



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La compagnie

Le projet





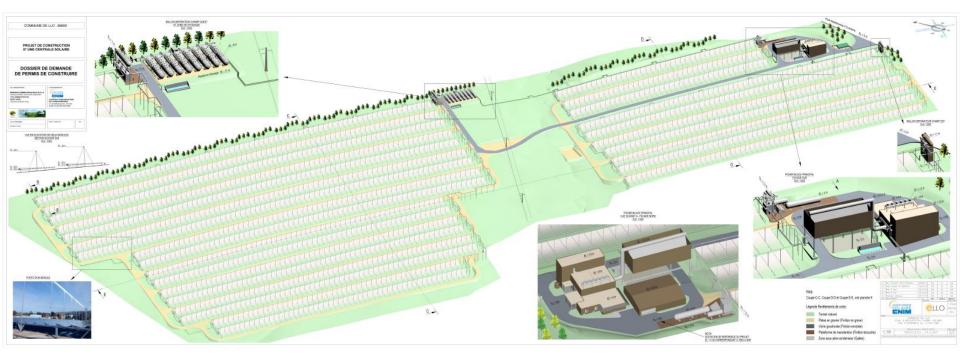
1st commercial Fresnel with energy storage to produce 20 GWh per year



Plan d'ensemble



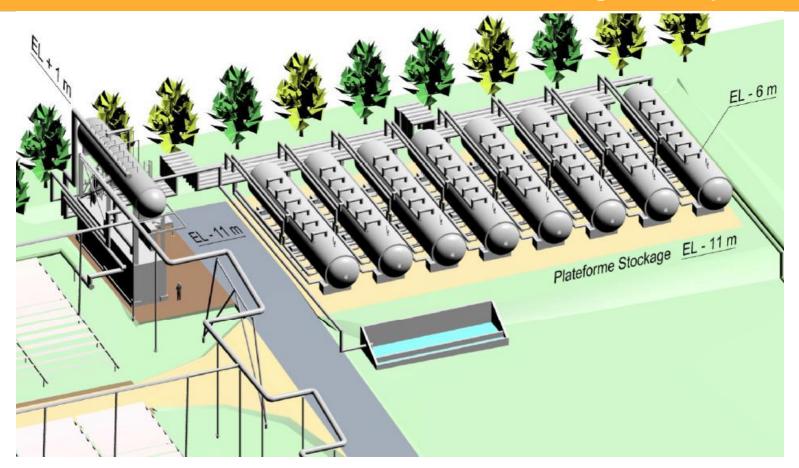
150 000 m² de miroirs, 11 km de récepteur. DSG à 70 bar, 285°C



Détail : le stockage



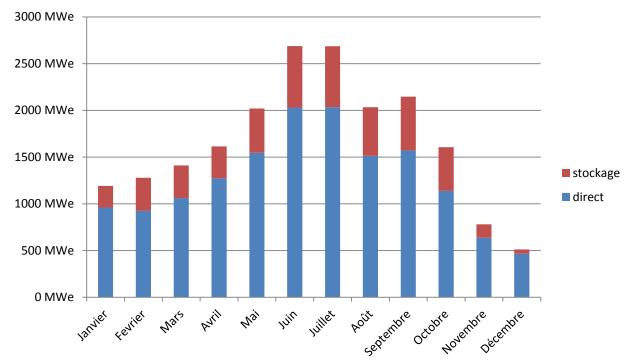
9 ballons d'eau chaude de 120m³ : 4h de stockage thermique



Production annuelle



25% de l'électricité est produite en décalé via le stockage thermique

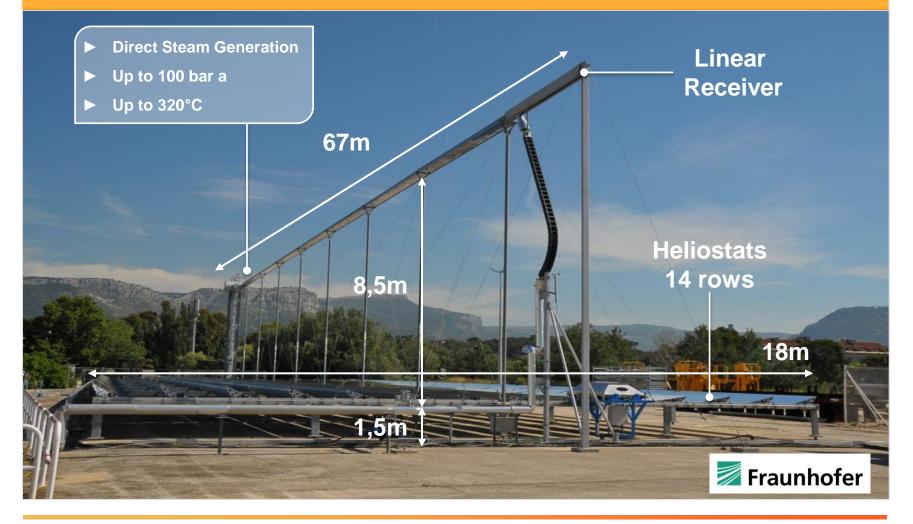


Répartition de la production electrique annuelle

Prototype existant



One Solar Steam Generator module produces up to 500 kWth









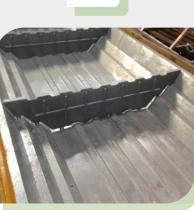
Main Components (1)





Mirrors

Flat glass mirrors with high reflectivity and slightly bent to ensure convergence of the solar rays at the receiver. High accuracy to ensure optimal performance



2

Mirrors support

High rigidity and ultra light weight support made up of thin metal sheets on which the flat mirrors are mechanically curved. No welding. Casing weighs only 80kg



3

Mobile Workshop

Reflectors assembled on project site in the mobile workshop: higher local content and reduced costs.



4

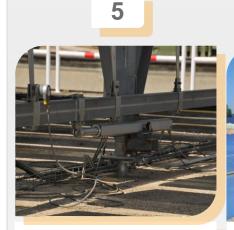
Receiver

Receiver tube made up of stainless or carbon steel with selective coating. Secondary reflector to increase solar energy recovery



Main Components (2)





Solar Tracker

The sun's path is followed by a oneaxis-tracking system. Just one low-power electric actuator is enough to rotate the entire module.

TENTEL

Cleaning System

6

Robot for automatic cleaning of mirrors. Water consumption at extremely low levels. Ensures 99% of reflecting capacity

ATEN

7

Foundation

High precision in the positioning of the screwed or piled foundations. Does not require concrete.



8

Structure

Made with standard profiles, galvanized steel to ensure resistance over time. Simple and fast installation with use of local materials and labor

Example of Applications



Standalone Solar Power Plant

