

Green Power & Green Heat

Modular CSP: John Cockerill's breakthrough solution for CO₂-free and dispatchable power and heat

Engineered to deliver renewable energy to:

- Industries
- Remote mining sites
- Off-grid sites
- Congested grid areas

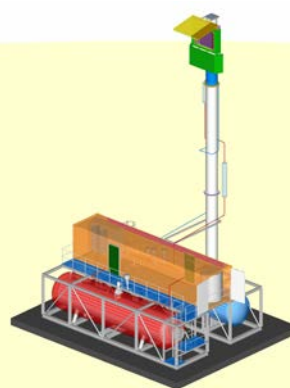
Drawing on over 15 years of experience in tower CSP projects in Chile, China, the UAE, and South Africa, our experts propose a Modular CSP System.

This system delivers dispatchable energy through molten salt long duration storage: over 10 hours of storage with no time degradation over the lifetime (25+ years).

Modular CSP generates high-temperature and high-pressure steam — up to 550 °C — perfectly suited for steam turbines and a wide range of heat applications.

Thanks to the multi-towers concept, Modular CSP provides:

- Very high solar field efficiency
- **Robustness and single-failure free** facility
- Easily scalable system
- Easy to install (high prefabrication level), to operate (fully automated) and to maintain



Solar receiver specifically designed for small power and thermal storage using prefabricated vessels



Overview of several units optimally arranged to reduce footprint to a minimum

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Modular CSP is fully ready for:

- existing plant hybridization (fossil-fueled plants or intermittent renewables like PV)
- greenfield or brownfield projects (by reusing an existing power block)
- sizing the solar energy portion to align with multiple phases investment
- as a stand-alone solution

John Cockerill Energy offers a fully integrated and functional system, converting solar irradiation to useful energy. There are **no complex interfaces**.

Technical Data	Technology Owner
Each solar field (6.4m ² mirrors) feeds one solar receiver (2 MW nominal capacity) Increased optical efficiency: up to 70% annual efficiency thanks to the optimized solar field and receiver design	John Cockerill and DLR (German Aerospace Center)
Each solar receiver directly feeds one thermal storage made of one pair of vessels (40MWh).	John Cockerill
Each molten salt storage feeds a molten salt steam generator (superheated steam up to 550°C and 160 bara). Other steam conditions are possible.	John Cockerill
Solar steam feeds a steam turbine and/or industrial processes.	Any turbine manufacturer

What about economics?

Economic indicators are highly dependent on each case study.

Our experts are ready to study your specific case to assess any of them: CAPEX, LCOH, revenues, ... We have conducted several case studies demonstrating the strong competitiveness of Modular CSP compared to natural gas-fired solutions.



CSP tower plant in Mohammed bin Rashid Al Maktoum Solar Park, UAE equipped with a John Cockerill thermal solar receiver. The John Cockerill logo was created using the real reflection of the sun on the mirrors

Curious to discover more? Let's talk!

Get in touch at
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