

Green Heat/Power Solution: Modular CSP

Introducing Modular CSP: John Cockerill's Breakthrough Solution for CO₂-Free, Dispatchable Power and Heat Production.

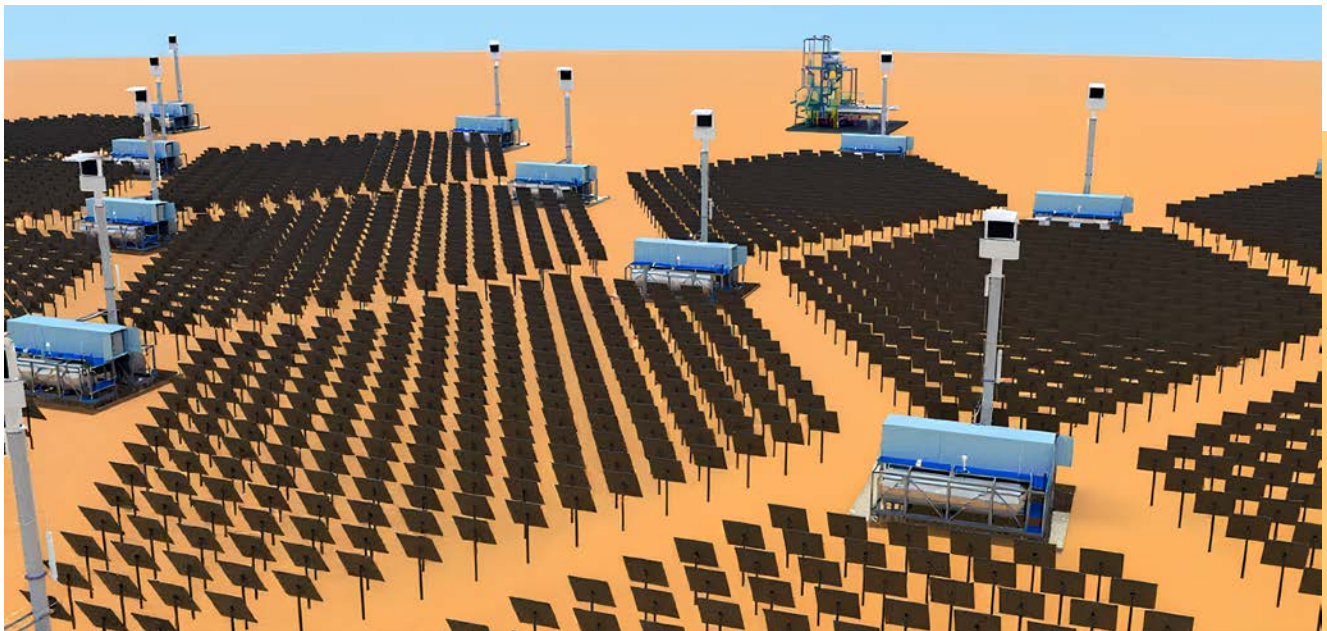
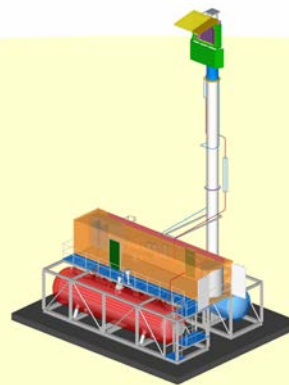
Perfectly designed to deliver renewable energy to:

- Grid (capacity market AND grid ancillary services)
- Industries
- Remote mining sites
- Off grid sites

This solution is based on John Cockerill's Modular CSP system, drawing on over 15 years of experience in tower CSP projects in Chile, China, the UAE, and South Africa. This system delivers **dispatchable** energy through molten salt storage (long duration -typically 10+ hours- with no time degradation over the lifetime -25+ years-) and produces high temperature and pressure steam suitable for steam turbines and any other heat applications (up to 550°C).

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

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



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In terms of investment, Modular CSP is fully ready for:

- Existing plant hybridization (fossil-fueled plant or intermittent renewables like PV) or as a stand-alone solution
- Greenfield or brownfield projects
- Sizing the solar energy portion to align with investment constraints

John Cockerill Energy offers the 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 (± 70% annual efficiency) | John Cockerill with the expertise of DLR (German Aerospace Center) |
| Each solar receiver directly feeds one molten salt storage. Multiple vessels (40MWh) or tank types are possible. | John Cockerill |
| Each molten salt storage feeds the 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, LCOE, revenues...). We have already conducted several case studies demonstrating the strong competitiveness of Modular CSP compared to natural gas-fired solutions.



Do you want to know more about this technology?

Contact us at energy.transition@johncockerill.com



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