# ENERGETICS

## DENERG/SHELL - Optimal heat-transfer strategies, dynamic integration and cost–performance trade-offs of concentrating solar thermal (CST) H2/syngas production

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| **Funded By** | Dipartimento DENERG<br>SHELL GLOBAL SOLUTIONS INTERNATIONAL BV [P.iva/CF:804013019B01] |
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| **Context of the research activity** | Solar thermochemical fuel production. |
| **Objectives** | i. Objective 1 – System-level design: Develop and assess alternative system configurations for indirectly heated thermochemical reactors, including HTF selection, heat-transfer strategies, and multi-reactor operation.<br>ii. Objective 2 – Energy integration and optimization: Create operating and control strategies enabling continuous hydrogen production under transient solar conditions.<br>iii. Objective 3 – Techno-economic feasibility: Produce detailed cost models, sensitivity analyses, and pathways toward scalable, dispatchable solar thermochemical fuel processes. |
| **Skills and competencies for the development of the activity** | Modeling of balance of plant structures for Chemical Looping.<br>Techno-economic analysis. |