

## DIGISOLAR Vision

DIGISOLAR envisions a future where solar thermal—hybridised with complementary renewable technologies—becomes a key pathway to deep decarbonisation. By coordinating solar thermal with thermal energy storage and technologies such as biomass, heat pumps, CHP, PV, and power-to-heat, DIGISOLAR unlocks higher renewable fractions, greater flexibility, and new opportunities for participation in energy markets. By merging the proven strengths of solar thermal with advanced digital solutions, DIGISOLAR aims to deliver reliable, efficient, and fully decarbonised heat for industry and district heating networks.

At the core of DIGISOLAR's mission is the digital transformation of solar thermal systems. Through smart, data-driven tools, DIGISOLAR improves the way systems are planned, designed, operated, and maintained. These digital solutions build trust, enhance performance, reduce costs, and enable seamless integration with other renewable energy sources. They empower stakeholders with transparent data, high-quality planning capabilities, and trusted performance verification, accelerating the adoption of hybrid solar-thermal solutions.

## Project Partners

DCARBO<sub>2</sub>



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# DIGISOLAR

Advanced digital tools  
for optimised planning,  
maintenance and  
operation of solar  
thermal hybrid systems



[digisolar-project.eu](https://digisolar-project.eu)

Solar thermal plays a pivotal role in achieving energy efficiency and decarbonization goals. It complements other renewable technologies, offering a local, sustainable supply chain while supporting the European Union's targets of reducing greenhouse gas emissions by 55% by 2030 and achieving climate neutrality by 2050.

Digital technologies play a crucial role in this transition by offering quality assurance and fostering reliability and trust. They also enable optimizing operational efficiency, maximizing clean energy generation, reducing GHG emissions, and fostering business model innovation.

By integrating multiple renewable sources and providing robust data infrastructure, digital tools ensure the seamless operation of hybrid renewable energy systems and thermal energy storage.

## DS Suite



The DIGISOLAR software suite (DS Suite) offers a comprehensive framework of five interconnected tools designed to support planning, operation and optimization of large-scale hybrid-solar thermal systems, achieving high shares of renewables to accelerate the decarbonization for industrial process and district heating demands.

The DS Suite facilitates seamless planning, real-time monitoring, and operation optimization across a range of energy system configurations.

## Demo sites

DIGISOLAR will bring the DS Suite and its individual packages to TRL 7 by demonstrating the technologies in 4 real plants:

- **in Turkey**  
Parabolic trough collectors in a paper mill plant.
- **in Italy**  
District heating network integrating high vacuum flat plates collectors with thermal energy storage (TES) and advanced technologies (heat pump and combined heat and power systems).
- **in Germany**  
District heating network integrating solar thermal, biomass, flat plate collections and biogas, also used for food production.
- **in Greece**  
Hybrid system combining biomass, heat recovery and high vacuum flat plate collectors with advanced high temperature heat pump and TES integration, in a paper mill plant.