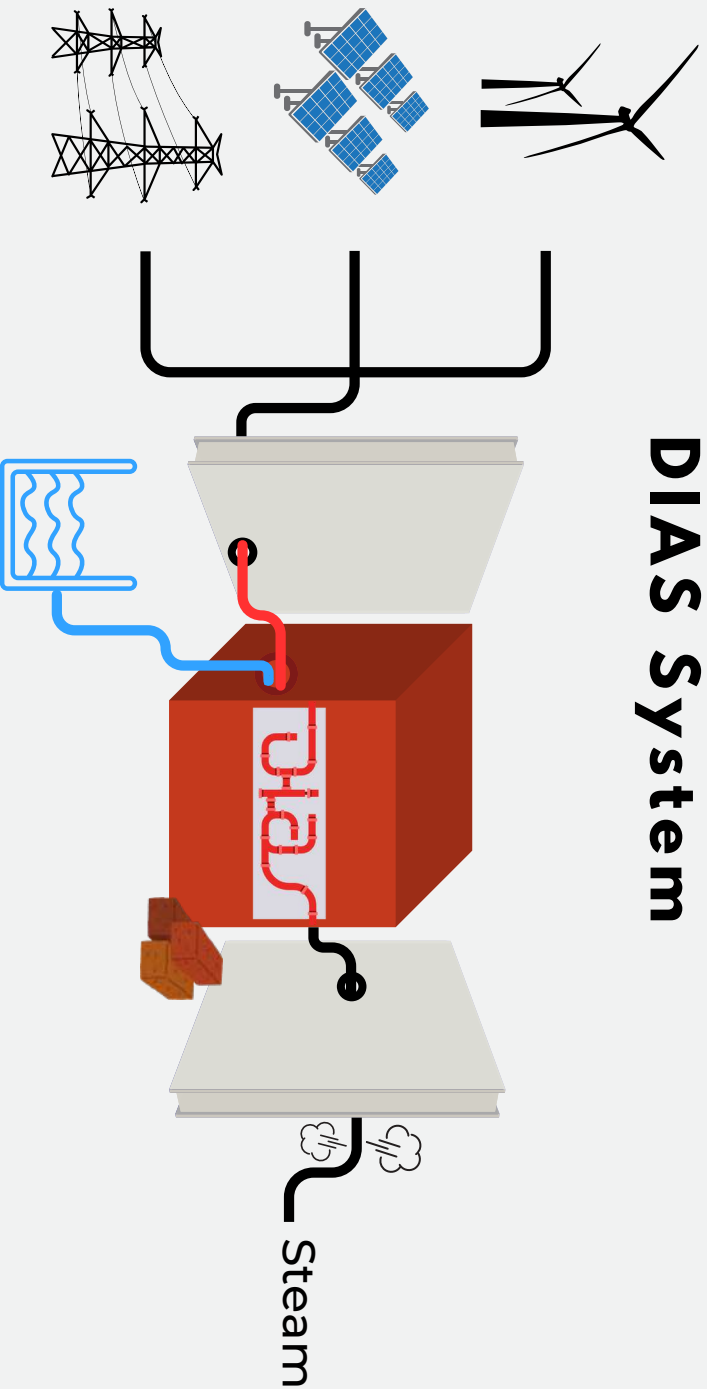


# Consortium

TAAOS

FREDERICK RESEARCH CENTER

## Connect:

*DIAS, turning rubble into reliable renewable energy.*

Funded by the European Union
NextGenerationEU

Republic of Cyprus

Cyprus tomorrow
RECOVERY AND RESILIENCE PLAN

RESEARCH & INNOVATION FOUNDATION

**This Project is funded by the Recovery and Resilience Facility of the NextGenerationEU instrument**
**Grant Agreement n° ENTERPRISES/ENERGY/1123/0027**

DIAS

**Development of an innovative low-cost and highly efficient Energy Storage system**

# Challenge

Cyprus enjoys tons of sunshine—but without affordable storage, most of that clean power goes to waste. The grid struggles with sudden solar swings, factories still burn fossil fuels for heat, and mountains of construction rubble keep growing because reuse options are limited.

# DIAS Solution

**DIAS converts discarded bricks and tiles into geopolymer "heat batteries."**

Up to 700 °C: Stores and releases ultra-high-temperature heat from the sun or industrial waste streams.

Plug-and-play modules: Cast or 3-D-printed blocks that scale smoothly from pilot size to multi-megawatt arrays.

One fix, two wins: Absorbs excess solar energy and diverts construction waste away from landfills.

# Impact

**More clean power: Captures lost solar energy and feeds it back when Cyprus needs it most.**

**Circular economy boost: Turns waste into a valuable product, cutting carbon and landfill costs.**

**Affordable, reliable energy: Steadier grids and cheaper industrial heat support new green jobs and investment.**


# Objectives

**Formulate and optimize CDW-based inorganic polymers for high-temperature TES applications.**

**Design and develop modular TES units using both casting and 3D printing methods.**

**Validate system performance under laboratory and near-real operational conditions.**

**Conduct a Life Cycle Assessment (LCA) and techno-economic analysis to assess the environmental and commercial potential of the solution.**

**Promote dissemination, stakeholder engagement, and market readiness to support future commercialization and adoption of the technology.**