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

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1st Press Release

Challenge: Despite Cyprus having one of the highest solar energy potentials in Europe, a significant portion of renewable energy is lost due to the lack of effective energy storage solutions. At the same time, large volumes of construction and demolition waste (CDW) remain underutilized. The DIAS project addresses both challenges by developing an innovative solution that stores excess thermal energy while repurposing waste materials, contributing to a cleaner, more sustainable energy system.

Technology: DIAS is pioneering a Thermal Energy Storage (TES) system based on geopolymers derived from CDW, such as waste bricks. These advanced materials are engineered for high thermal stability, enabling them to operate efficiently at temperatures up to 700°C. The system is developed using both casting and 3D printing methods, offering flexibility, scalability, and compatibility with modern energy infrastructure.

Applications: The TES system developed under DIAS can be used in Concentrated Solar Power (CSP) plants, industrial heat recovery (e.g., cement, steel, and plastics sectors), district heating networks, and even in buildings such as hotels and residential complexes. It also supports smart grid stability by storing surplus renewable energy and releasing it when demand is high, bridging the gap between energy supply and demand.

Consortium: DIAS brings together two leading institutions: RTD Talos Ltd, a key player in research and innovation management in Cyprus, and Frederick Research Center (FRC), known for its expertise in materials science and sustainable technologies. Together, they combine industrial insight and scientific excellence to develop and deploy the DIAS TES system.

Project Data

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