



NEW STORAGE LATENT AND SENSIBLE
CONCEPT FOR HIGH EFFICIENT CSP PLANTS



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Deliverable D2.2 - Key Performance Indicators

ABSTRACT

The present deliverable D.2.2 is related to the work realised in Task 2.3 of NewSOL project. In this task, suitable indicators together with minimum target values and success criteria have been defined to evaluate the performance of the materials developed in the lab and the performance of the system architectures tested during the demo phase.

In Chapter 2 and 3, the key performance indicators (KPIs) have been defined to characterize the NewSOL materials and sensor solutions and to allow for comparison between these materials and the benchmarked commercial solutions. For instance, the KPI quantify the mechanical performance (such as, compression and flexural strength), thermal performance (specific heat capacity, thermal conductivity), and the stability (thermal and chemical) and manufacturability (workability, synthesis). Indicators measuring the physical properties of materials (density, viscosity, etc), the cost for acquisition and their geographical availability have been also considered. The definitions of these KPIs are essential for the lab screening process in WP3 and WP4.

Moreover, Chapter 4 and 1 aims to characterize the success of the NewSOL's TES concepts, the thermocline tank and the concrete module respectively. This objective has been achieved by a twofold strategy: (1) defining suitable KPIs to quantify the thermal performance of the TES systems that will be built at the Evora Molten Salt Platform (EMSP) and (2) validating its scalability by setting targets for the full-scale TES equivalents that will be analyzed in the Business Cases proposed in Task 2.4. Examples of these KPIs are the overall system conversion efficiency, storage efficiency, CAPEX and OPEX for retrofit/new built, LCOE. These KPIs are in accordance with the performance levels specified in relevant parts of the SET-Plan Integrated Roadmap.

For each KPI, the following elements have been developed: specific definition of the KPI, calculation methodology for the KPI evaluation and the needed data to calculate the KPI, including target values. The final KPI list will be consolidated and validated by all NewSOL partners and will be used along the project to follow-up the success of the lab tests in WP3 and WP4 and the demo-tests in WP6. Furthermore, the KPIs set in this deliverable will be validated in latter stages of NewSOL, in Task 7.1, after the demo-tests at EMSP have been performed.