

About us

CEEES is a research project funded by the European Union to develop advanced technology solutions for the energy transition. The project focuses on renewable energy storage using the transcritical CO₂ cycle, storing CO₂ in geological formations, and extracting geothermal heat.

Why?

- The EU is prioritising the phase-out of fossil fuels and achieving “net zero greenhouse gas emissions
- In this energy transition, we need technologies that are effective, affordable, and environmentally friendly.
- The intermittency of renewable energy sources, such as solar and wind, requires the use of energy storage methods.

Our contribution

- **Innovative electricity storage:** CEEES uses CO₂ as a working fluid in a closed-loop underground storage system.
- **CO₂ storage:** CEEES captures and stores CO₂ in geological formations while also benefiting from geothermal energy.
- **Economic benefits:** CEEES can deliver reliable renewable energy and significantly support decarbonisation.
- **Proof of concept:** We are developing and testing a 20 kW lab-scale model to address the challenges at the surface-to-underground interface, a critical area needing new solutions.



Who we are

Our project is coordinated by the University of Seville, located in southern Spain.

We are a research team consisting of:

- 10 main partners based in 5 EU countries
- 20 Affiliated Entities

We bring together experts in energy systems, energy storage, geology, geothermal systems, and CO₂ storage.

Why CEEES matters

The CEEES technology offers:

- Increased energy storage capacity and flexibility to deliver energy in various forms.
- Cost-effective and space-efficient underground CO₂ storage systems.
- Reliable renewable electricity for a cleaner, more stable energy grid.
- Research breakthroughs in CO₂ storage and closed CO₂ cycles, paving the way for future innovations.

