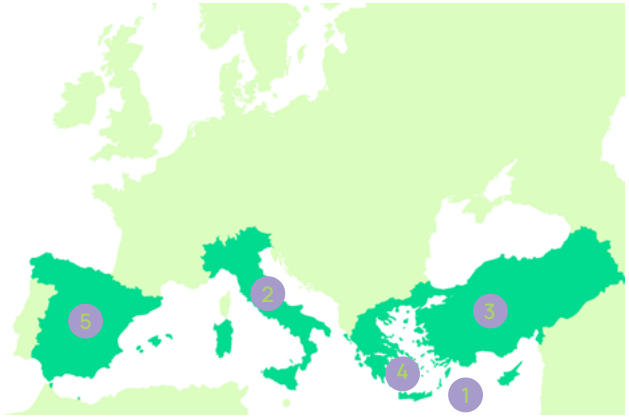
Real Grids



THEUS will validate **five use cases** addressing the most representative challenges faced by European grids.

These use cases will be fed with data from **five real grids** representing different project stages and voltage levels:

1. a planned transnational HVAC/HVDC transmission interconnector connecting Crete-Cyprus-Israel
2. an existing and a planned MVAC/LVDC grid in Italy
3. a planned MVDC distribution grid in Turkey
4. an existing HV AC/DC link between Attica-Crete
5. an existing MVAC/MVDC/LVDC microgrid in Spain

Project Partners

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Building hybrid grids for a resilient and sustainable energy future in Europe

theus

Transmission and distribution Hybrid nEtworks with enhanced resilience and robUstnesS

Europe's energy system faces major challenges: rising energy demand, climate change impacts, and the need for greater integration of renewable energy sources.

The THEUS project seeks to revolutionize European grids by advancing on resilient, interoperable AC/DC hybrid systems, incorporating advanced planning and design methodologies, innovative operational grid technologies, and robust protection systems.

By pioneering new tools and technologies, THEUS paves the way for a reliable, carbon-neutral, and interconnected European energy network.

Main objectives

- To establish **methodologies for an improved planning and design of DC and AC/DC hybrid systems** across various voltage levels, incorporating Cost-Benefit Analysis.
- To **develop innovative grid forming technologies and controls** for enhanced operation of hybrid grids.
- To **foster resilience and seamless interoperability of grids** in the European Network System through advanced protection systems.
- To carry out the validation of THEUS **solutions up to TRL5** to obtain reliable results of their performance and applicability in different environments and voltage levels.
- To promote the exploitation and replication of THEUS solutions through **dissemination and knowledge transfer** of the project's main outcomes towards the targeted stakeholders, fostering synergies ongoing projects.

THEUS aims to validate technologies and use cases to reduce energy losses and O&M costs, while ensuring the safe operation of hybrid grids with higher integration of renewable energy sources. The strategy for defining the path to market will focus on replicating these results in the analysed grids and across the entire EU power system.