

Iberia



Connected peninsula

Digital twins for coordinated grid operation
across the Iberian system



Concept

The Iberian Pilto Site implements Digital Twin for the coordinated planning of the grid in a scenario which is no longer bulk-based, but in which there are more and more energy producers, connected to all voltage levels and participating in different electricity markets, and electricity consumption is migrating from a classic passive consumption to an active management of the consumption assets as well as a variety of sources.

In this sense, Twin-EU aims at increasing the security and resilience of the Iberian Power System in a context of a high penetration of RES and enhancing, thanks to the implementation and a coordinated operation of different Digital Twins in the regional energy value chain, the grid planning and operation activities.

Key outcomes

- 4 Digital Twin of the involved Electricity Grids (2TSOs and 2 DSOs).
- 3 DT-based tools at grid and electricity markets levels to support planning activities.

Impact/added value

- Advanced tools for grid planning purposes with DT-based pre-validation of the scenarios
- Integrated ecosystem for DTs collaboration within the TwinEU Continuum

Time for deployment

Demonstrations ongoing from mid-2025 until mid-2026

Potential users

- Grid Operators (TSOs and DSOs)
- Flexibility Services Providers

Lesson learnt

„Digital Twins collaboration has the potential of enhancing RES penetration in distribution networks leveraging flexible assets in combination with innovative business models.”

“Validation activities of the equivalent models are delivering accurate results, which will be key for the execution of the proposed UCs.”

Technology Readiness Level



Demo leader: **etra** | +D

Demo partners: **red eléctrica** **REN** **R&D NESTER** **Adaion**

Cuerva* **anell** **INESCTEC** **circe**

Associated partners: **enel** **iDE**
Grupo IBERDROLA



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TwinEU