

red eléctrica

A Redeia company



Operation of the
power grid



Management of
the transmission



Integration of
renewable energy

redeia

Global operator of essential infrastructures.

A driver of the energy transition and universal connectivity.

It operates the Spanish electricity system and manages electricity and telecommunications networks (fibre optics), with a focus on innovation and sustainability.

red eléctrica

Backbone of the energy transition, ensuring a secure, high-quality, and increasingly renewable electricity supply.

reintel

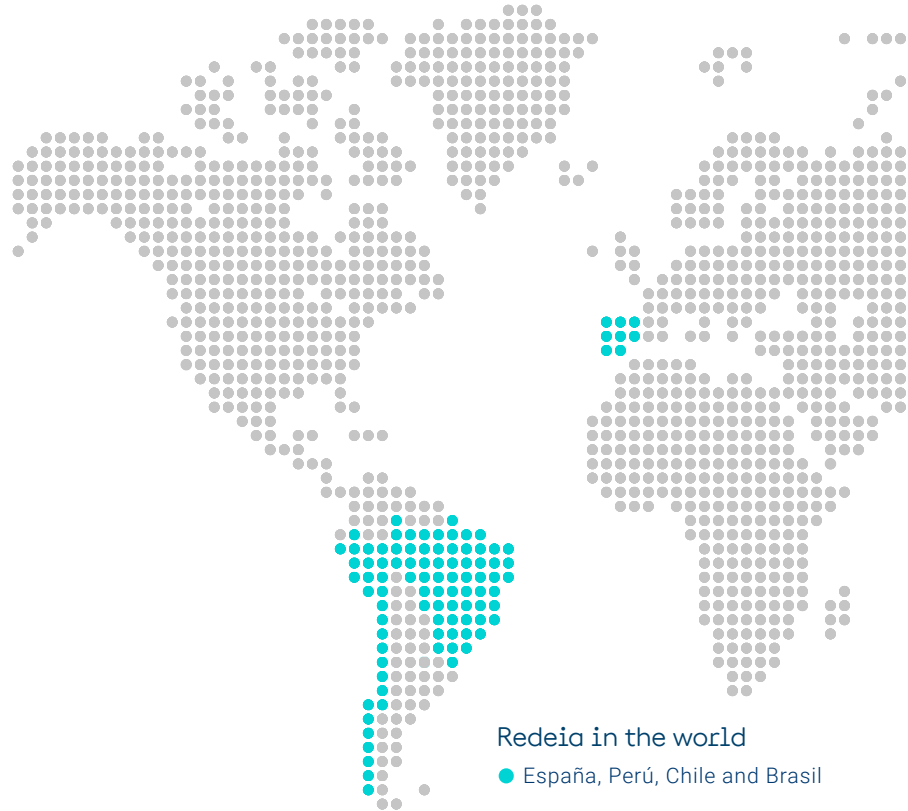
Spain's leading dark fibre provider, essential for universal connectivity.

redinter

The driving force behind the decarbonisation of the energy model and sustainable development in Latin America.

elewit

A technology innovation platform driving the energy transition and connectivity.



A leading international TSO

1985



Red Eléctrica is founded

- Red Eléctrica is made Spain's power grid operator and transmission system operator (the world's first TSO).

1986-2004



Expansion of the transmission network

- Years of significant progress and development in the expansion of the transmission system.
- Commissioning of the first electricity interconnection between two continents (Spain-Morocco link).
- Start of the development of fibre optics for remote control of facilities and operation of the system.

2005-2011



Founding of CECRE and Inelfe

- Commissioning of the second Spain-Morocco link.
- Creation of the renewable energy control centre (CECRE) in 2006.
- Incorporation of Inelfe for interconnection projects with France in 2008.

2012-2018



Development of interconnections between systems

- Commissioning of the Peninsula-Balearic Islands link.
- Commissioning of the Mallorca-Ibiza link (full integration of the Balearic islands and peninsular grids).
- Commissioning of the Spain-France interconnector via the eastern Pyrenees.

2019-2025



Promotion of the energy transition

- Commissioning of the new Mallorca-Menorca link.
- Construction begins on the Salto de Chira pumping station in Gran Canaria.
- Commissioning of the new Lanzarote-Fuerteventura link.
- Commissioning of the new Ibiza-Formentera link.
- Commissioning of the Peninsula-Ceuta and Tenerife-La Gomera links, and progress on the interconnections with Portugal and France.

Spain's sole transmission operator and transmission system operator

Functions

- Operates the power grid in real time, ensuring the continuity and reliability of supply.
- Maximises the safe integration of renewable energy into the power grid.
- Designs, builds and maintains the national electricity transmission network.

Figures for 2025

Lines

- Mainly 400 and 220 kV.
- Interconnections between electricity systems.

Circuits: 46,074 km

- 43,656 km overhead.
- 1,168 km underwater.
- 1,250 km underground.

Substations

- 6,759 positions.
- 99,071 MVA of transformer capacity.

Quality of service

- 98.38% Availability index of the Spanish grid.



CECOEL

An electricity control centre that ensures the smooth operation of the Spanish power grid, maintaining a real-time balance between electricity generation and consumption.

We operate the power grid 24 hours a day, 365 days a year.



CECRE

A world-leading renewable energy control centre that enables the maximum possible amount of renewable energy to be integrated safely into the power grid.



Transmission grid

A network of power lines and substations that connect electricity generation to distribution points serving consumers, and that interconnects the Spanish grid with those of its neighbouring countries.

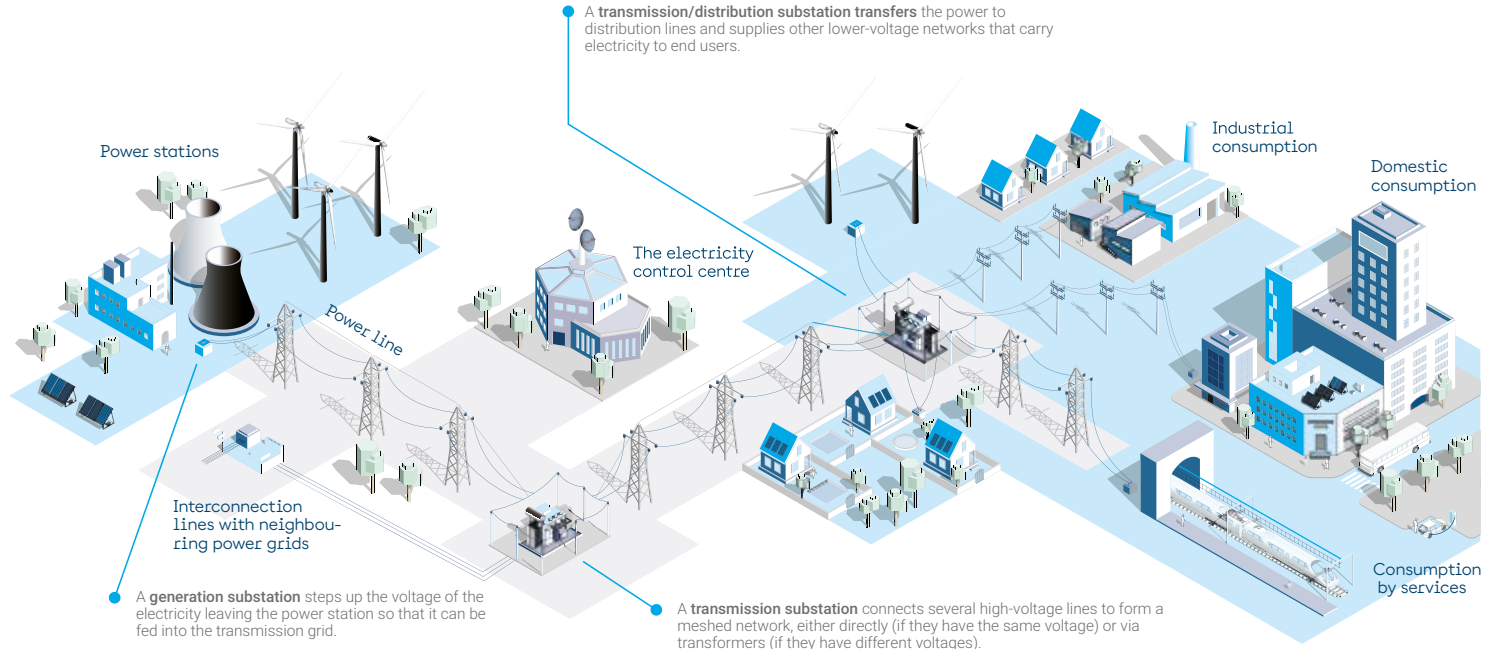
Security of electricity supply

Red Eléctrica is the sole transmission system operator (TSO), making us the central and key component of the Spanish electricity system.

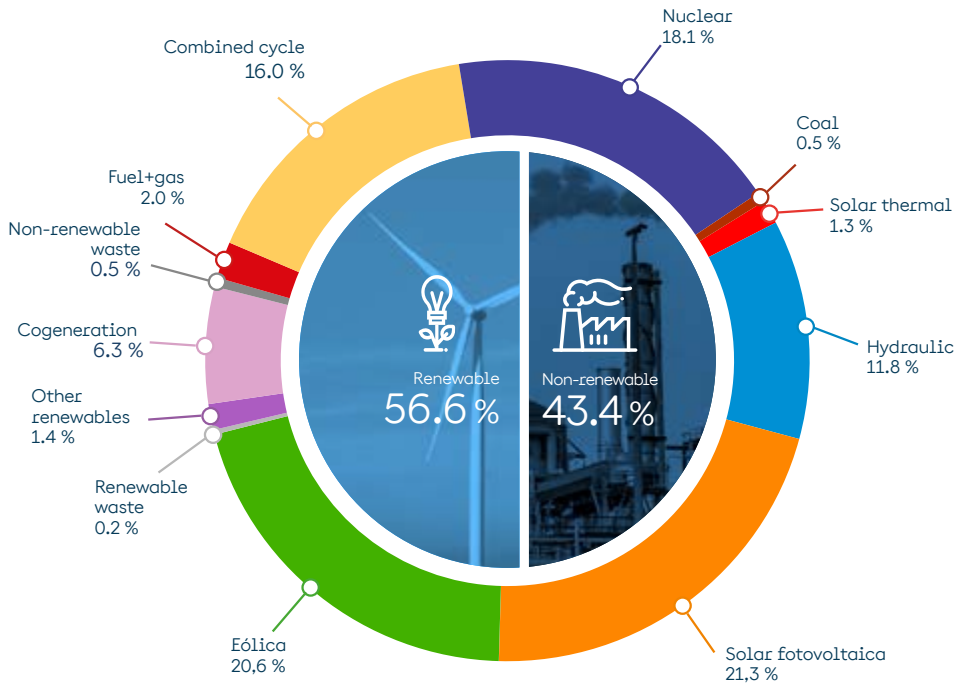
We transmit **high-voltage electricity** from power stations to the distribution points of the distribution companies, where it is supplied to consumers.

Furthermore, **we operate the electricity system in real time**, 24 hours a day, 365 days a year, to maintain a constant balance between generation and consumption, as electricity must be produced at the exact moment it is needed because it cannot be stored in large quantities.

To operate the grid, we have the electricity control centre (CECOEL), which ensures the generation and transmission system is working correctly in coordination with the control centres of Spain's electricity generation and distribution companies.



Structure of Spanish electricity generation in 2025*



*Includes self-consumption

2025 Electricity system data



Electricity demand in Spain*
269.6 TWh



Plninstalled capacity in Spain
150.8 GW



Installed renewable capacity
68.9 %



National electricity from renewables
56.6 %



Power generated with zero CO₂ emissions
74,5 %

Electricity transmission grid facilities



Lines

The transmission **grid lines form a meshed network** linking generation points with substations, consumption nodes (border with the distribution companies) and high-voltage consumption points. They can be overhead, below ground, or underwater.



Substations

The basic function of a substation is **to connect various elements of the grid** to deliver the energy generated in the power stations to consumers.



Positions

The set of **switchgear and devices** that connect the **substation busbar** to each of the incoming or outgoing lines or to the substation transformer or machine.



Transformers

Electrical devices that **increase or decrease the voltage in an alternating current electrical circuit** by means of electromagnetic interaction, **maintaining the capacity**.

Service quality of the transmission grid.

Red Eléctrica ensures that the facilities of the transmission grid are in optimum conditions of availability and reliability, through the **application of sustainable, efficient and safe maintenance policies.**

The service quality indicators show the high level of reliability and quality of supply provided by Red Eléctrica's facilities, well below the limits set by current legislation.

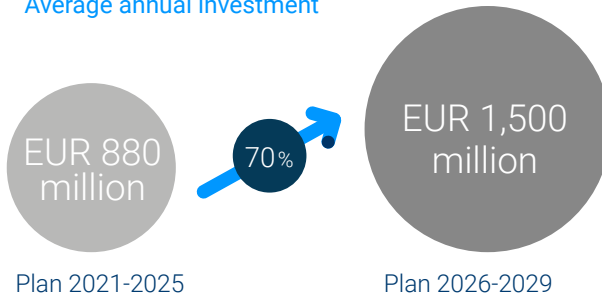
Quality of service indicators	2025
Peninsular transmission grid	
Availability of the grid (%)	98.38
Energy not supplied (ENS) MWh	80.49
Average interruption time (TIM) minutes	0.176
Balearic Islands transmission grid	
Availability of the grid (%)	98.17
Energy not supplied (ENS) MWh	35.80
Average interruption time (AIT) minutes	2.99
Canary Islands transmission grid	
Availability of the grid (%)	98,38
Energy not supplied (ENS) MWh	6,42
Average interruption time (AIT) minutes	0,375



TSO investments in 2026–2029

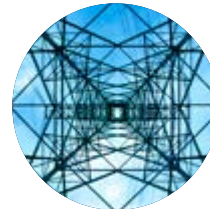
Record levels of investment in TSO growth

Average annual investment



Major projects in operation by 2029





- **Submarine interconnection with France via the Bay of Biscay.**
- **New 400-kV transmission lines:**
 - Andalusia-Castilla-La Mancha
 - Andalusia-Murcia-Castilla-La Mancha-Aragón
 - Andalusia-Extremadura
 - Castilla-La Mancha
 - Basque Country-Navarra
- **Synchronous compensators** in the peninsular, Balearic Islands and Canary Islands systems.
- **Salto de Chira** pumped-storage hydropower plant.



2025-2030 electricity planning (proposed)

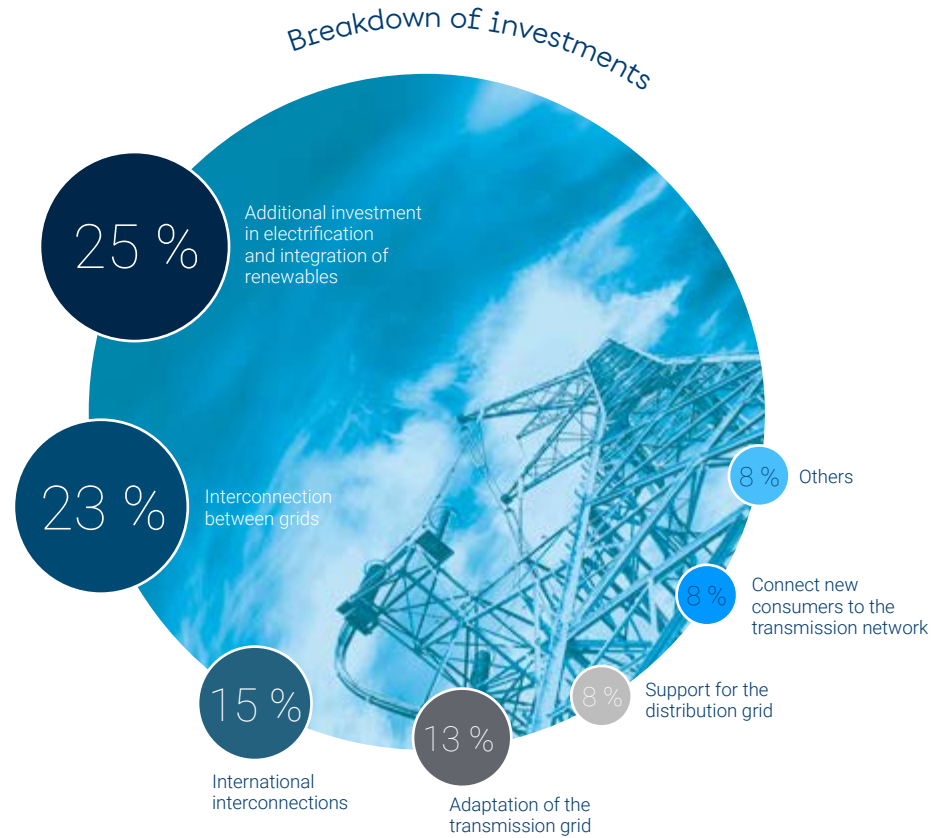
Sets out the TSO's investment plans for the coming years, with an unprecedented total of over EUR 13,000 million.

Guiding principles

-  Maximise the use of the existing grid.
-  Roll-out new renewable energy facilities.
-  Connect new consumers, electrify the economy and the island grids, and strengthen international interconnections.
-  Strengthen the resilience and security of the grid.

Investments of the TSO

The investments for the period 2026–2029, together with those made in 2025 and those planned for 2030 and 2031, will ensure that the new electricity plan is either completed or underway by 2031.



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Valuing the essentials

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