

An aerial photograph of a large electrical substation situated in a hilly, forested landscape. The substation features numerous high-voltage power lines, transformers, and other electrical equipment. The surrounding area is green and hilly, with a road visible on the right side. The image is framed by a green border at the top and bottom.

Strengthening Portugal's Power Grids for a Renewable and Electrified Economy

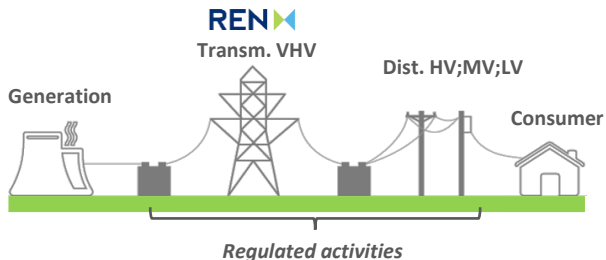
17th June 2026

EUFORES – Assembleia da República

REN: National PT TSO for Electricity and Gas

Electricity

- ▶ Transmission System Operator (TSO)
- ▶ Technical Global System Management



RAB¹ (M€; Dec 2025)

2 228

Network (km; Dec 2025)

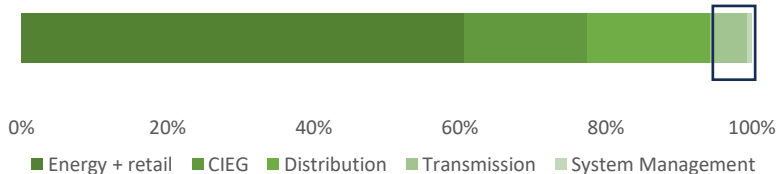
9 895

Consumption (TWh, 2025)

53,0

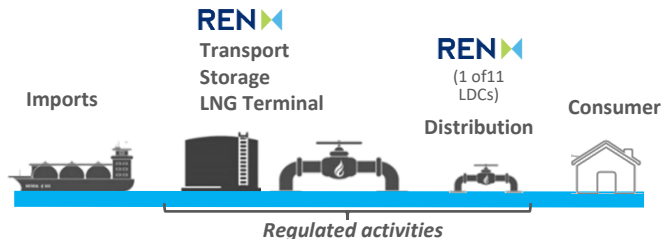
Electrical Sector Annual Value 7,4 mM€ (T2026)

5,7%



Gás

- ▶ Gas TSO and Technical Global System Management
- ▶ LNG Terminal – Sines and the Underground Storage at Carriço
- ▶ Gas LDC north region with aprox. 410 thousand clients



RAB¹ (M€; Dec 2025)

768

500

Network (km; Dec 2025)

1 375

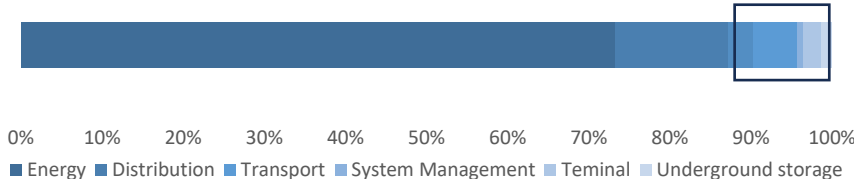
6 761

Consumption (TWh, 2025)

45,0

Gas Sector Annual Value 1,3 mM€ (T2025/2026)

12,8%



Enabling the Energy Transition

Delivering sustainable and transparent renewable share growth

Security of Supply



- National Resource Adequacy Assessment (Electricity & Gas)
- European Resource Adequacy Assessment (ERAA)
- Flexibility (FNA Methodology)
- Capacity Remuneration Mechanisms analysis

Network



- Ten-Year Transmission Network Development Plan (Electricity & Gas)
- 5-Year Distribution Development and Investment Plan (Gas)
- (new) CAPEX H2

Regulation



- Benchmarking
- Efficiency, incentive model
- Regulatory model adaptation to new realities (System Management activities)

RES integration



National Energy and Climate Plan 2030 implementation

Renewables:

- Solar agreements
- Grid expansion CAPEX

Green gases:

- Biomethane
- H2

Systems Operation



- RES integration
- New electricity market system services
- Renewable gases integration
- Flexibility tools

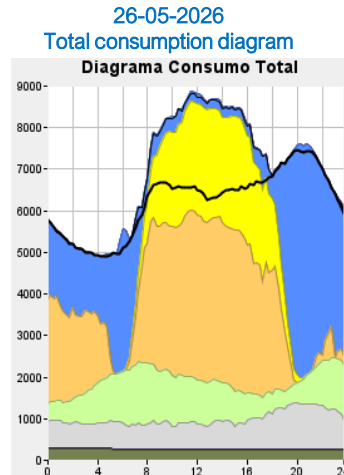
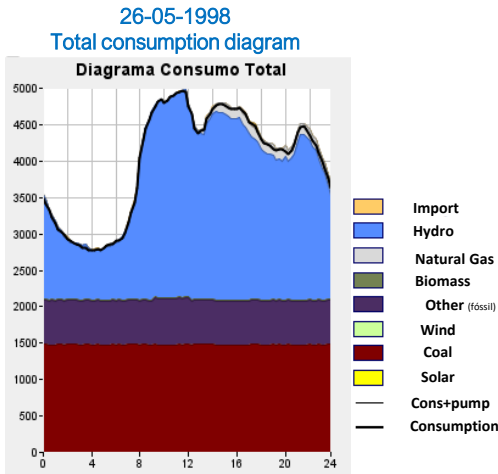
Transparency



- Interaction with the community
- Pack for Engagement
- Transparency Register
- European Technical Associations:
 - ENTSO-E, ENTSG
 - Renewables Grid Initiative
 - Hydrogen Europe

Electricity Sector trend: a growing complexity

The Energy Transition is associated with greater complexity in SEN's structure and an increased need for flexibility

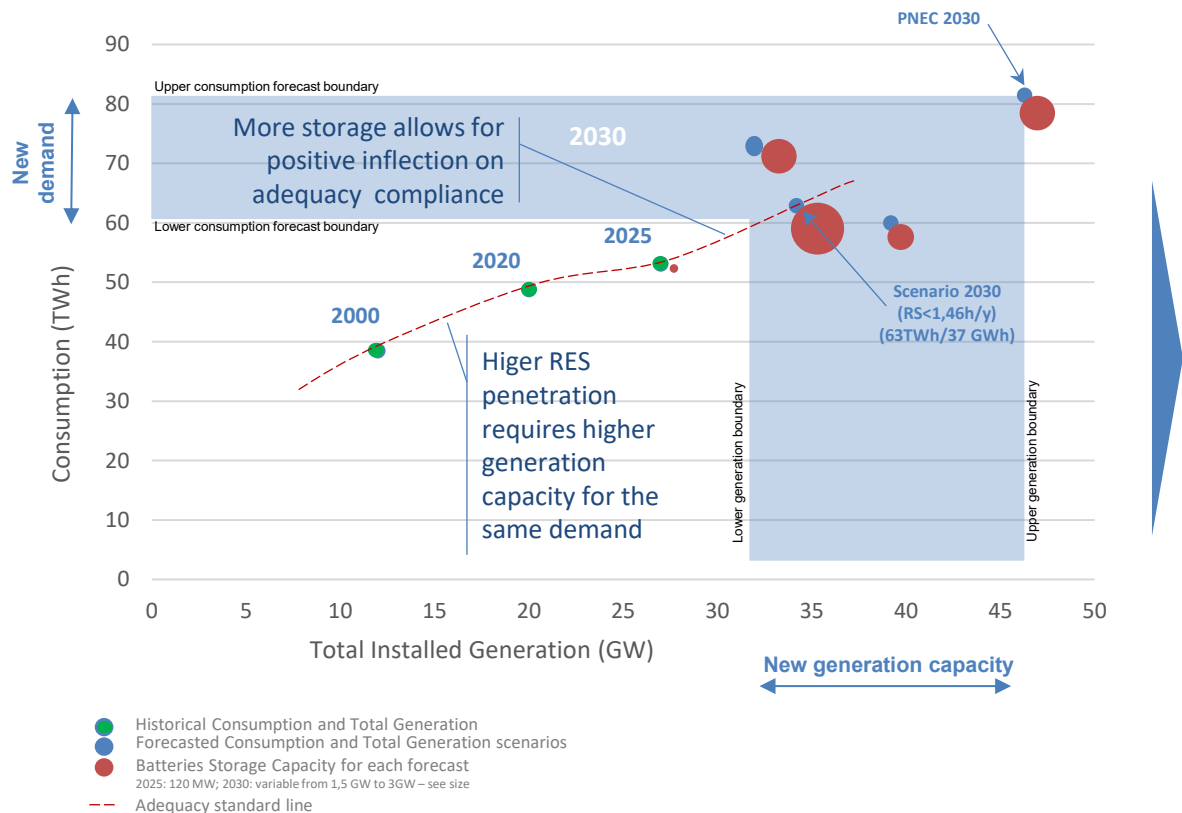


New paradigm of the energy mix and energy markets

- + Storage (hydraulic, batteries or other) to stabilize prices and provide Ancillary Services (balance market)
- + Reserves on System to address imbalances
- + Ancillary Services are necessary to cope with variability
- + Flexible demand (Demand Side Response)
- + Reliability on the several players (market agents) and their responses

Electricity Leads the Energy Transition

But the challenges ahead are relevant and the uncertainty is relevant



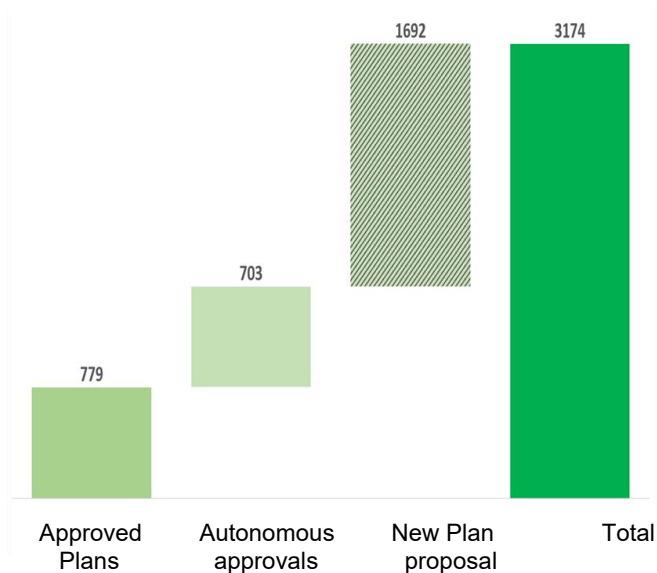
High uncertainty requires close monitoring of supply and demand

- **Interconnections are crucial for security of supply**
 - Strong coordination with Spain is essential
- **The system requires firm dispatchable capacity**
 - The introduction of capacity mechanisms will be fundamental
- **Effective decisions for storage implementation**
 - Not only batteries but also pumped storage
- **Complementary RES is necessary**
 - New solar generation with wind repowering and overplanting

New grid reinforcements are still required

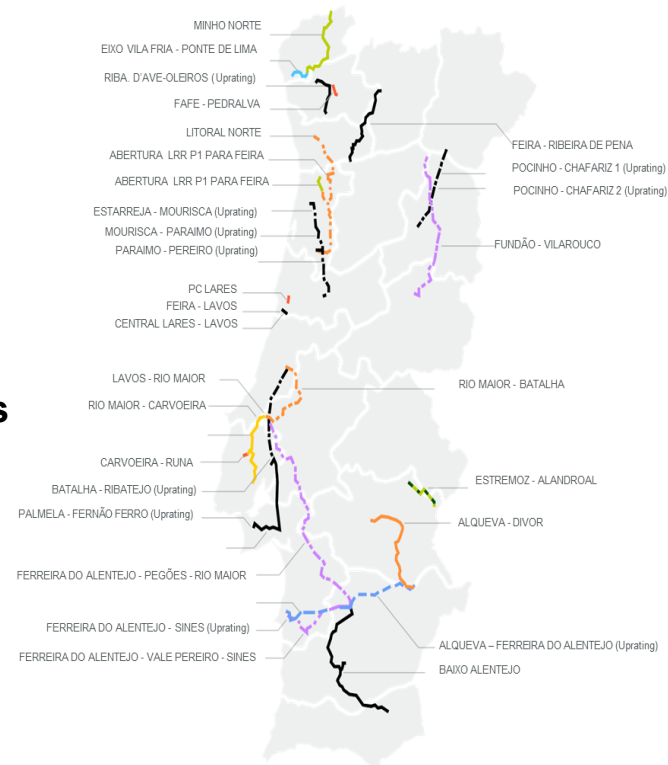
Flexibility comes *hand-in-hand* with a hardwired transmission grid

Investment plan 2025-2034 (M€)¹



A challenging development plan, of which, in the short term, **+1,500 km**, and **+10 new substations** And special equip.

Phase shifters
STATCOM
Sync. Compensator
Shunt reactors



1. Excluding CAPEX for internal grid reinforcements and connection elements financed by the grid users, namely for grid access capacity for power plants through direct agreements with the grid operator

Conclusion - Transition reshapes the System

RES

+ Energy Independence and sustainability ...

...but more and better system and business stabilization tools needed



1. How to make this future sustainable and affordable?



2. What comes first? Demand, supply or policy driven network?



3. How much are we willing to pay for SoS? Energy independence?

- Renewables are zero marginal cost, but sourcing is volatile
- Sustained energy independence and sovereignty
- Grids are crucial but stability challenges increase
- Flexibility solutions are required and investment certainty

Secure and
affordable
Energy

Thank You