

EU Electricity Grids: Strategic, multi-layer assets in a complex world

Green transition - Climate Goals

Competitiveness, Energy Security, Innovation

Connectivity - Market Integration

Essential to reduce import dependencies,
including on critical raw materials

Implications for Resilience and Defence

Grid Expansion and upgrading ->

Long-term insurance against price fluctuations
and security threats

Critical Energy Infrastructure - Defence:
Joint responses to natural disasters and crises

Clean Industrial Deal - EU KPIs

Increase electrification rate from 21.3%
today to 32% in 2030

Install 100 GW of RES annually up to 2030

Reach 40% domestic clean tech production
by 2030

The EU paid extra € 930 bn for fossil imports
during the energy crisis

Untapped RES potential:
Grid bottlenecks, long connection queues
Limited storage and demand-response

Wind curtailments surged in 2025:
12.2% in Spain, 4.9% in Germany

Multiple challenges - Balancing objectives

Sources of funding ?

Stagnating demand - Expected growth
Electrification & AI, Data centers, Hydrogen

Large-scale RES integration
Prosumers, Storage, Flexibility
Digitalization - Cybersecurity

Ageing Infrastructure - Permitting Delays
Climate Adaptation

Supply Chain: Bottlenecks and Concentration
Agile Regulatory Frameworks
Skills Shortage

**Massive Scale of Investment vs.
Financing Capacity**

**Affordable Prices for Consumers vs.
Attractive Financial Returns to Investors**

**Expected to act as Growth Companies vs.
Perceived as Low-risk Investments**

Sources of Funding

**EU Streams: RRF, ERDF, CEF, Invest EU,
Horizon Europe**

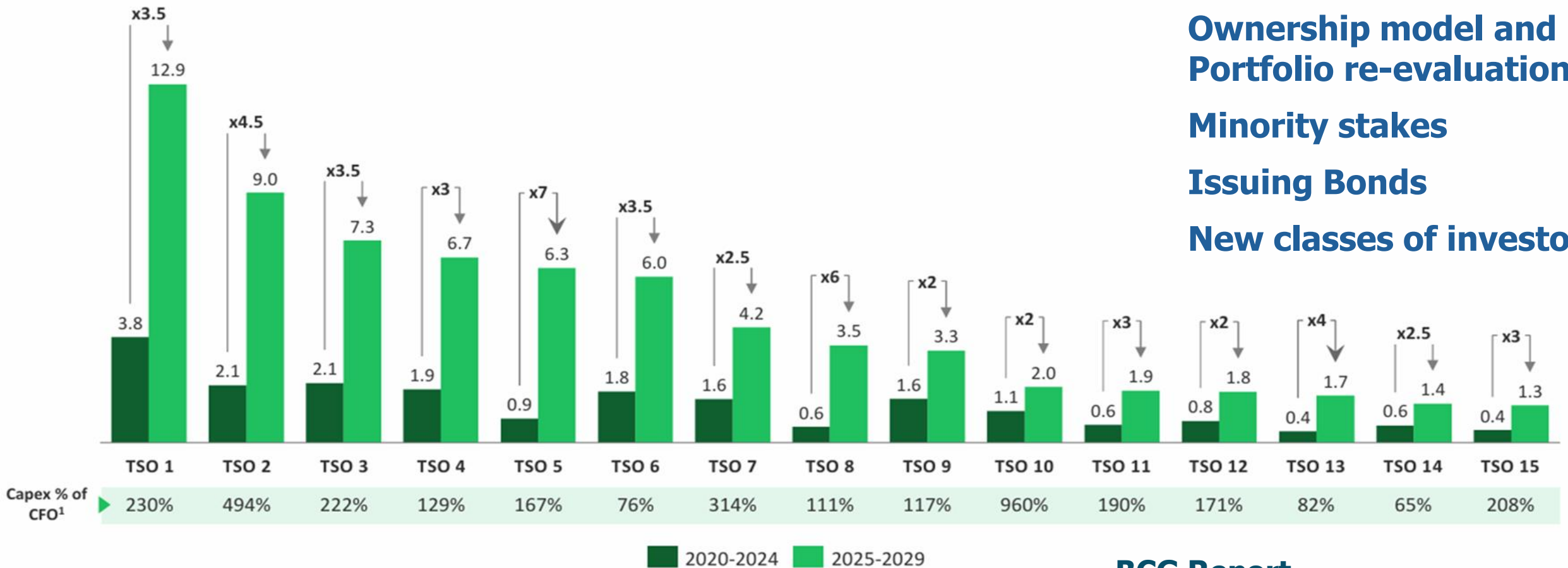
Modernisation Fund, Islands Decarbonisation

Initiatives: Competitiveness Fund, TechEU

New State Aid Framework: CISAF

Insufficient Capital - € 250 billion gap between required capex and expected revenues

Average annual capex (€ B)



Mindset Shift

Ownership model and Portfolio re-evaluation

Minority stakes

Issuing Bonds

New classes of investors

BCG Report

1. Capital expenditures as a % of cash flow from operations, 2020-2024 cumulative
Source: S&P Capital IQ; Company filings

Explosive growth in investment - TSOs face a looming capital shortfall

1	BCG Report	Over the next 5 years, the 15 largest European TSOs are projected to invest € 345 billion, tripling the amount in previous 5 years.
2		Capital expenditures in 2024 are 50% higher than 2023.
3		TSOs are mobilizing all available funding levers, including debt, equity, asset sales, to deliver on their objectives.
4	Mobilizing Private Capital - Example	Scottish Power secured £ 1.35 bn. The National Wealth Fund invested 600 ml. A robust line-up of private investors, including Bank of America, BNP Paribas, Caixabank, Lloyds, NatWest, in a co-lending facility.
5	Green Bonds	The Italian TSO issued the 1 st fully compliant green bond with the new EU standards.

Unfolding Funding - From “Achilles Heal” to “Achilles Shield” ?

ECF amounts to €234 bn, if we exclude existing funds (Horizon Europe, Innovation)

Regarding decarbonisation, ECF adds only €26.2 bn over 7 years vs. required investments of 460 bn per year

**Grids Package - CISAF: New instruments
Guarantees, loans, SPVs, blending**

**CEF Budget - Energy:
Increase from €5.84 bn to €29.9 bn
Only 4 smart e-projects in last round**

Value Creation:

**Enedis has contracted 3.6 bn electrical equipment (96 bn plan by 2040)
67% is manufactured in France**

**Defence Policy Window: € 131 bn
Strategic Reshuffling**

Investments in grid resilience, from underground cables to cyber protection, are essential to sovereignty

EIB: Revised ceiling to 100 bn, 11 bn on grids

**Improve Performance –
e.g. Grid Enhancing Technologies**

**Stimulate Flexibility –
AI-VPPs can capture 10-20% of US peak demand by 2030**

**Improve Governance – Regional Coordination
Simplify Procedures, including TEN-E**

Network charges surged in several countries

Netherlands - Grid tariffs increased by:

For households: €10 per month in 2023, €7 in 2024, €5 in 2025.

For SMEs: 30%- 53% in 2023, and a further 11% in 2025.

Large-scale users: Steep increase in 2024, limited increase in 2025.

UK Parliament - CEOs Projections

Bills expected to be 20% higher in 4 years, even if wholesale prices halve.

Even if wholesale price was zero in 2030, bills could still be the same as today, due to surging non-commodity costs.

Germany:

Grid charges account for 25-30% of the bill.

Government subsidies: €26bn for TSOs, next 4 years, via Climate-Transformation Fund.

Budget 2026: Energy infrastructure €2.1bn, Hospital transformation €6bn.

UK: "We are building infrastructure as if there was more demand. Still, demand is 8% lower than in 2019".

Germany: Grid fees being reformed from 2029. Charges to be introduced for storage.

The Regulatory Framework is evolving

Shift to Totex, Benchmarking, Anticipatory Investments

1

**Incentives -
The Italian approach**

Grid operators' revenue is linked to efficiency rewards instead of investments.

Incentives to reduce balancing costs & losses - increase flows.

Benchmarking: " Retain part of savings if you perform better"

2

**Accelerated Funding -
The UK approach**

**Advanced Procurement Mechanism:
Allows access to £4bn to unblock supply chains and accelerate construction.**

Stricter delivery targets.

**Cost of equity allowance for private investment:
6% over 5 years, down from requested 6.5 to 6.9%.**

Ten-E Regulation: Revision and other developments

1	Long-term FTRs to hedge risks across bidding zones	6th list of PCIs and PMIs (2023) includes 7 interconnectors with third countries, including GREGY and: Elmed - Sicily (IT) and Tunisia (TN) Cronos- Zeebrugge (BE) and Kent (UK) Nautilus- Modular Offshore Grid 2 (BE) and Leisten (UK)
2	Simplification Regional Commitment	Several opinions submitted by different entities, with limited impact, causing delays up to 27 months. CBCA: Not a precondition for funding. Binding EU interconnection targets and an EU network tariff component have been explored.
3	Existing Infrastructure	Grids upgrading needs to be incorporated as well. Germany allows for 3% return.

Flagship Actions of the Clean Industrial Deal

		2025				2026	
		Q1	Q2	Q3	Q4	Q1 // Q4	
Securing Affordable Energy		Action Plan on Affordable Energy	EIB's PPA guarantee system	Guidance on consumer switching	Recommendation on Energy Taxation	European Grids Package: Accelerate permitting	Revision of EU energy security framework
		Proposal on extension of Gas Storage Regulation	Recommendation on network charges		Guidance on CfD design and PPAs	New rules on demand response	Revision of Market Stability Reserve
Creating Lead Markets		Delegated Act on Low Carbon H2	3 rd call of EU Hydrogen Bank		Industrial Decarbonisation Accelerator Act	Electrification Action Plan	Revision of Public Procurement Rules
		Proposal for 2040 climate target	Launch of the H2 Mechanism		Simplification of carbon accounting methodologies	Heating & Cooling Strategy	Review of ETS Directive
Driving Public & Private Investments		Increase Invest EU's risk bearing capacity	Clean Industrial Deal State Aid Framework (CISAF)		Flagship call Horizon Europe	Industrial Decarbonisation Bank	TechEU investment program
		Critical Raw Materials Act: 1 st list of strategic projects	Recommendation on tax incentives Ecodesign and Energy Labelling Working Plan		Pilot auction Innovation Fund	Green VAT initiative	EU Critical Raw Material Center
Expanding into Global Markets		Simplification of Carbon Border Adjustment Mechanism (Omnibus)		Review of Carbon Border Adjustment Mechanism	Trans-Mediterranean Energy & Clean tech cooperation initiative	Proposal for Carbon Border Adjustment Mechanism extension	Circular Economy Act
		Negotiations of the 1 st Clean Trade & Investment Partnership			Gas Market Task Force report	New guidelines on Foreign Subsidies Regulation	
Ensuring a Just Transition					Guidance on Social Leasing for clean products	EU Fair Transition Observatory	
		Union of Skills			Quality Jobs Roadmap	Skills Portability Initiative	