Utilities Handbook 2023: Western Europe Regulated Power

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S&P Global Ratings

This report does not constitute a rating action

Contents

Key Takeaways | Back To Supporting Energy Transition

- **This handbook examines rated regulated power utilities in the six largest Western European economies:** Germany, the U.K., France, Italy, Spain, and the Netherlands. S&P Global Ratings rates more than 20 transmission and distribution system operators (TSOs and DSOs) across those countries.
- **From 2024 to well beyond 2030, electrification will support steady power demand growth.** Demand should expand at about 3% annually over 2024-2029, for a cumulative growth of about 23%, with regional differences dependent on various factors, including current levels of electrification.
- **TSOs, and to a degree DSOs, must invest massively to expand and strengthen grids**. Being a “winner” increasingly means executing grid strengthening/expansion with discipline containing leverage and/or dividends.
- **We expect regulatory frameworks will continue to underpin healthy and predictable cash flows.** Yet, as regulatory periods end, operators could face greater regulatory-reset risk.
- **M&A and/or governments support may increasingly affect ratings.** Energy-transition policies could prompt governments to more directly support grids to help preserve affordability and supply security.

Containing Leverage Will Be Critical To Support The Energy Transition

Sector dynamics	Current state	Challenges ahead	Possible mitigants
Energy policies	Before 2021, few policies were particularly focused on grid strengthening / expansion	Ambitious 2030 and net-zero targets require swift electrification of many energy applications	Policies encouraging prosuming, power and hydrogen storage, and flexible generation (flexgen) capacity
Power demand	Power demand has been flat or falling in Western Europe, and reached a 20-year low in 2023	From 2024, electrification increases demand 3% to 4% per year (a multi-decade high), just as record renewables contribution exponentially increases grid stability challenges	Demand on grids could be significantly mitigated by storage and flexgen
Regulation	Timely pass-through of opex and capex protects remuneration of assets and investments	Risk that remuneration adjustments are insufficient to contain negative discounted cash flows	Regulators and market design to incentivize investment in prosuming along the hydrogen chain
Rating impact	**Strong and predictable cash flows currently support low- to mid-investment grade (IG) credit quality**	**Financial risks could increase due to greater capex and regulatory resets**, making it critical to define sustainable leverage parameters now, including shareholder distributions	

Opex--Operating expenditure. Capex--Capital expenditure. Prosuming--producing and consuming.

Challenges Ahead For Power Infrastructure

– **From 2024 to well beyond 2030, power grids will face increasing challenges to grid stability due to:**
  - The electrification mega-trend raising demand by about 20% by 2030, and about 60% by 2040.
  - Countries shifting to intermittent renewables supply, while storage only gradually increases system flexibility.
  - The continued slow build-out of intra- and inter-country connections.

– **Our base cases reflects massive capex for TSOs, and to a degree DSOs, to strengthen grids, though:**
  - The pace and magnitude of investment remains uncertain, with risks mostly on the upside.
  - If negative free cashflows' effect on credit metrics exceed expectations, dividends may increasingly matter.

– **Regulatory frameworks will likely continue to underpin healthy and predictable cash flows.**
  - We expect regulation to remain very supportive in Western Europe over the next three-to-five years.
  - Operators could face higher regulatory-reset risk as regulatory periods end.
  - Will WACCs (often using backward-looking formulae) support investment financed at 300 basis points higher?

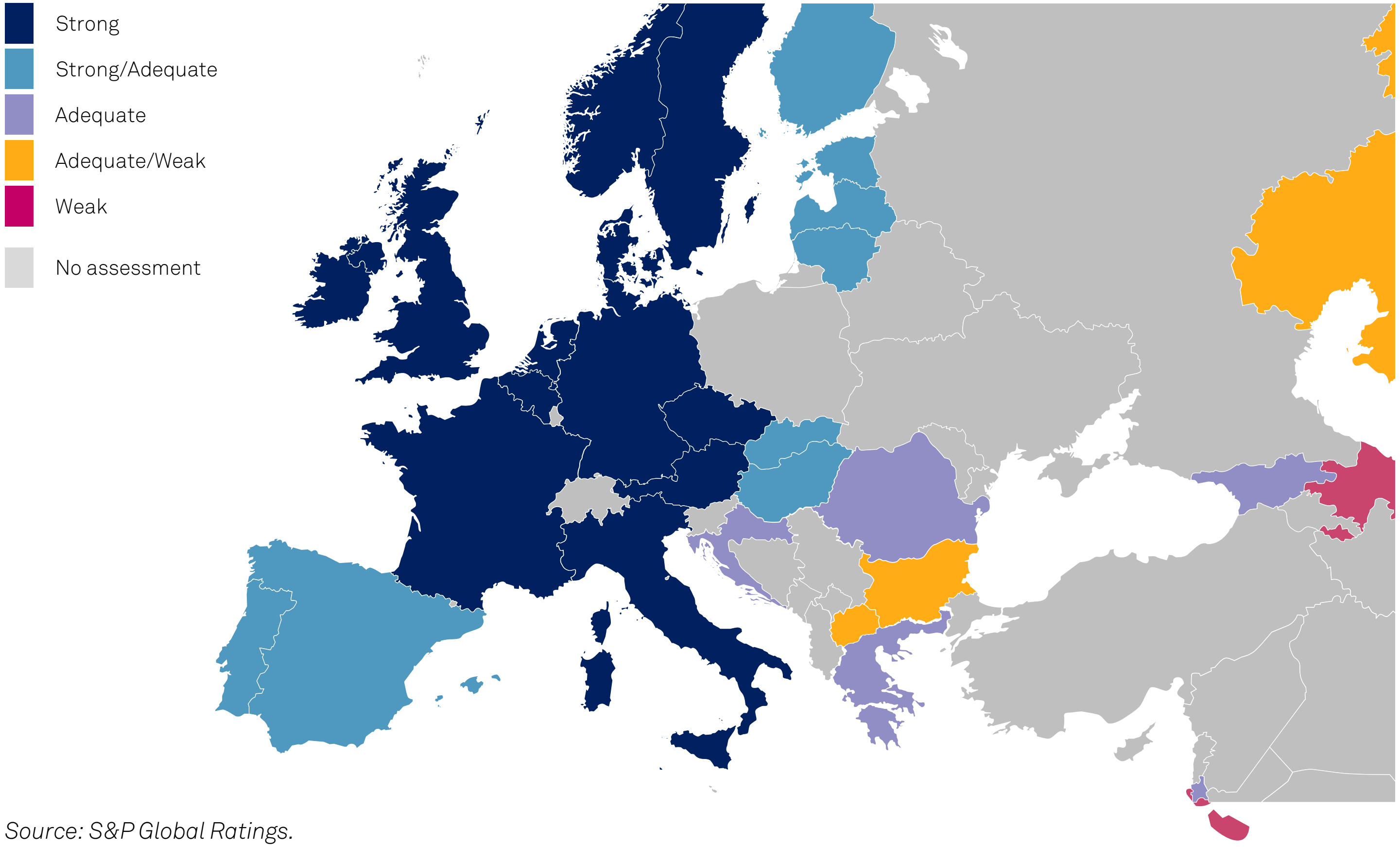
– **Intense investment may increase the rating impact of M&A / government support.**
  - Governments have ambitious energy-transition policy objectives and are often direct shareholders.
  - We monitor how governments track grids' ability to support the transition, affordability, and supply security.

Policy Responses To The 2021-2022 Crisis Hugely Boosted Grid Capex

- **Supportive regulatory frameworks shielded credit quality from the short-term impacts of the energy crisis.**
  - Operators typically can pass on higher energy costs, although not everywhere nor immediately.
  - Tariffs offer broad protection from accelerating inflation and 2022-2023 demand decline.
  - Market redesign and (negative) government intervention primarily relate to power generation.
- **The crisis prompted Europe to accelerate its energy transition and ensuring grid stability.**
  - TSO's capex will double, and increase further still in some cases
  - Transition acceleration will increase demands on grids.
    - E.U. target for renewables' share in the energy mix by 2030 doubled to 42.5% (aspiration: 45%), up from the previous target of 32.5%.
    - Germany raised its target to 80%, from 65%, while Spain's target increased to 81%
    - Loadshedding risks must be minimized across weather conditions .
  - Political support for new infrastructure is stronger, including interconnections to further integrate Europe's power markets (e.g., Spain to France, Germany's Südlink, Italian island connections).

Networks | Regulatory Framework Assessments

Our regulatory framework assessments address a jurisdiction's utilities' ability to recover costs and earn a timely return

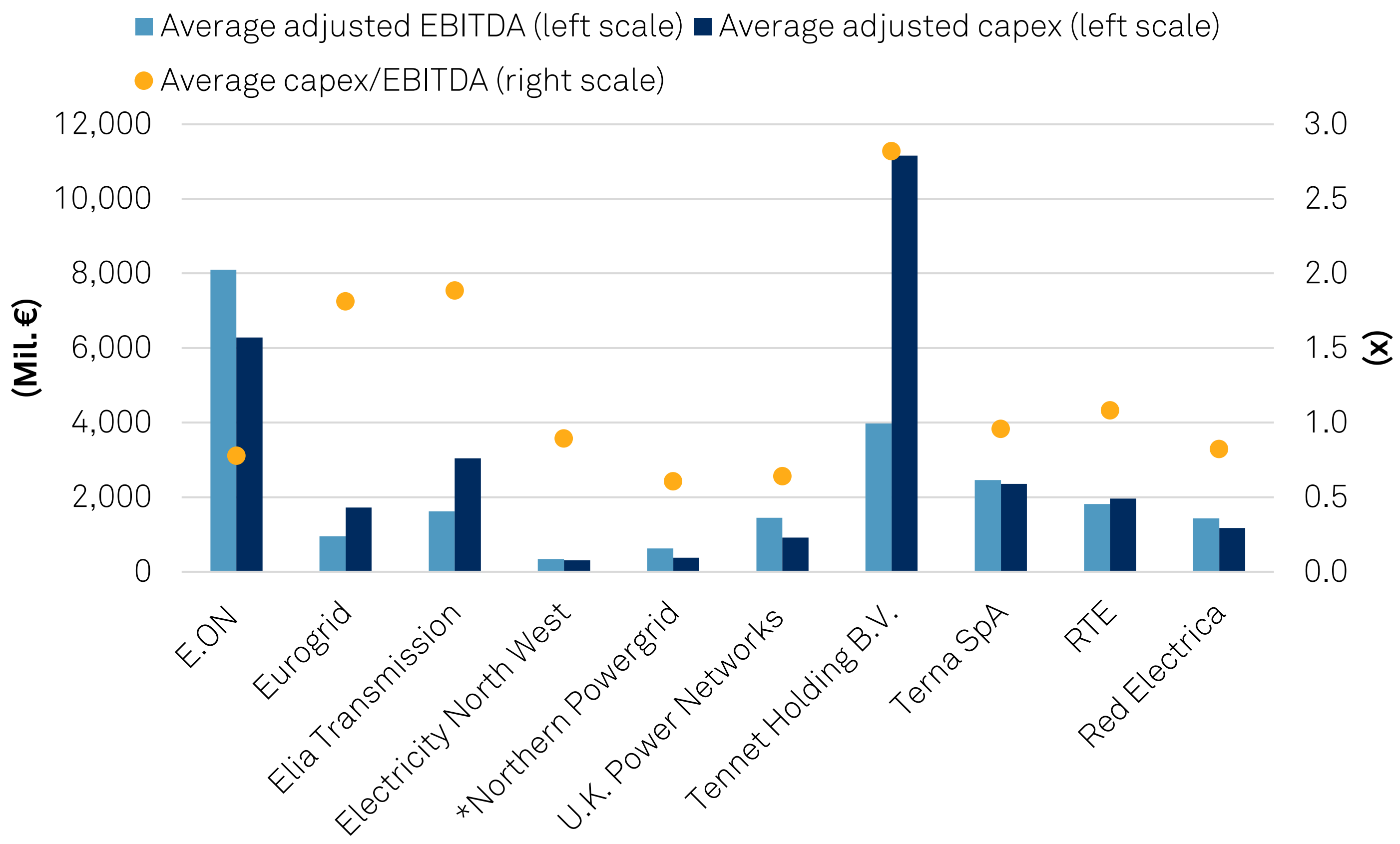


Source: S&P Global Ratings.

- We grade most Western European frameworks as "Strong", supporting IG ratings on power networks.
- Mismatches between regulatory frameworks and energy policies/capex ambitions weigh on credit quality. Especially when a framework remunerates using low risk-free rate assumptions, while projects are financed at new and higher rates.
- Increasingly, direct equity involvement by governments support networks facing massive capex, e.g., Germany and Benelux.

Increased Investment Will Strengthen Grids

Capex/EBITDA ratios for selected Western European power TSOs and DSOs



**Northern Powergrid 2024-2026 average, for other companies the ratios are the average over 2024-2027. Capex--Capital expenditure. DSO--Distribution network operators. TSO--Transmission network operators. Source: S&P Global Ratings.*

- Investments in low-carbon infrastructure will accelerate, fuelling future earnings growth.
- Germany and the Benelux will accelerate faster, with capex/EBITDA averaging about 2.0x over 2024-2027.
- The U.K., Central and Southern Europe will accelerate less rapidly, with capex/EBITDA at about 1.0x.
- Credit quality may be increasingly pressured by increased investments with greater negative free operating cash flows.
- Rising funding costs and operational bottlenecks could slow the delivery of these investments.
- Funding needs may reduce rating headroom and pressure stand-alone credit profiles (SACPs) unless balance sheets were prepared.

Western Europe Regulatory Frameworks | Why Most Are Strong

	U.K.	Germany	Netherlands	Italy	France	Spain
S&P Global Rating's regulatory framework assessment	**Strong**	**Strong**	**Strong**	**Strong**	**Strong**	**Strong/Adequate**
Regulator	Ofgem	BundesNetzAgentur (BNetzA)	Authority for Consumers and Markets (ACM)	Autorità di Regolazione per Energia Reti e Ambiente (ARERA)	Commission de Régulation de l'Energie (CRE)	Comision Nacional de los Mercados y la Competiencia (CNMC)
Type of regulation	Total expenditure, regulatory asset value based.	Return on equity (ROE) on regulatory asset base (RAB), revenue cap.	Real-plus WACC (real WACC plus 50% of inflation) on RAB.	Rate of return on RAB method (WACC on RAB).	Rate of return on RAB method (WACC on RAB).	Rate of return on RAB method (WACC on RAB).
Allowed regulatory returns	Return on capital of 3.17% (NGET/SHET) and 3.20% (SPTL) with company specific adjustments possible (for transmission). WACC of 3.93% (CPIH basis) with company specific adjustments possible (for distribution).	ROE of 6.91% after trade tax and before corporate tax, nominal value.	Pre-tax WACC set at 2.0% for 2022 with annual recalculation of WACC based on actual risk-free rates.	Pre-tax real WACC at 5% (for transmission). Pre-tax real WACC at 5.2% (for distribution).	WACC at 4.6% (for transmission). Nominal pre-tax WACC at 7.25% (for distribution).	Pre-tax WACC of 5.58% (for transmission and distribution).

NGET--National Grid Electricity Transmission plc. SHET--Scottish Hydro Electric Transmission. SPTL--Scottish Power Transmission Ltd. CPIH--Consumer Price Index, including owner-occupier housing costs. WACC—Weighted average cost of capital.

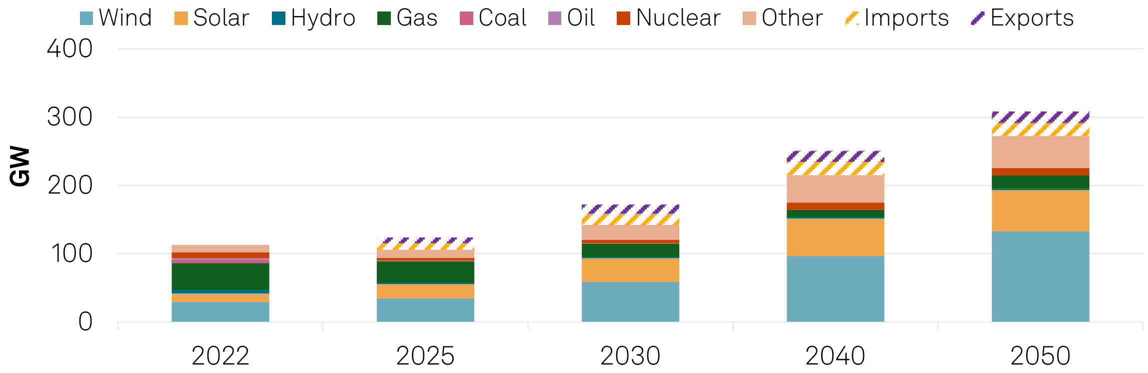
Western Europe Regulatory Frameworks | Why Most Are Strong

	U.K.	Germany	Netherlands	Italy	France	Spain
Cost pass-through?	Yes. Full pass-through with a one-year lag.	Yes. Balancing energy system is organized at the TSOs' level via Trading Hub Europe. Annual adjustments for highly volatile cost items, e.g., fuel gas.	Not in the current regulatory period. However, due to high commodity prices, the regulator will allow partial recovery in 2023 for DSOs. TenneT has only a partial recovery in 2023, with a normal recovery at T+2.	Yes. Full pass-through of energy costs for balancing the system, with almost immediate cash flow recognition.	TSO is responsible for balancing the system, 80% of costs for additional spot volumes are passed through with a one-year lag.	Yes. The system has a full pass-through of energy costs for balancing the system. This runs independently from TSO and DSOs.
Inflation linked?	Yes. Both regulated revenue and regulated asset value (RAV) are linked to the consumer price index including owner occupiers' housing costs (CPIH).	Yes. The cost base that flows into the revenue cap is adjusted annually for inflation (consumer price index (CPI)) and recovered through allowed revenue.	Yes. RAB is indexed yearly with half of the inflation estimate. Lack of ex-post adjustment for inflation is a relative weakness, with TenneT's tariffs that are indexed on an annual basis.	Yes. The framework provides full protection against inflation. RAB is calculated at revalued historical cost, therefore considering investments using an annual deflator. Revenue is also inflation linked.	Yes. The tariffs under the TURPE (electricity) framework are based on a real rate of return with RAB and are linked to projected inflation. Authorized revenues are also linked to inflation with an adjustment mechanism between projected and real inflation	No. Tariffs are not indexed to inflation in the current regulation. Regulator approves investments at realized prices for incurred costs.
Volume risk	None.	None. Volume risk on revenues is mitigated by the regulatory account.	None.	None.	None.	Limited exposure to volume risk for transmission operations. No volume risk for distribution operations.

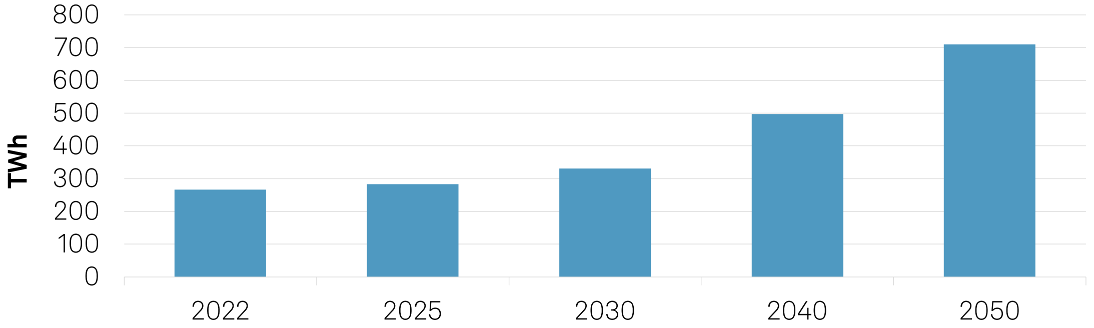
DSO--Distribution system operators. TSO--Transmission system operators.

U.K. | Power Demand And Generation Mix Trends

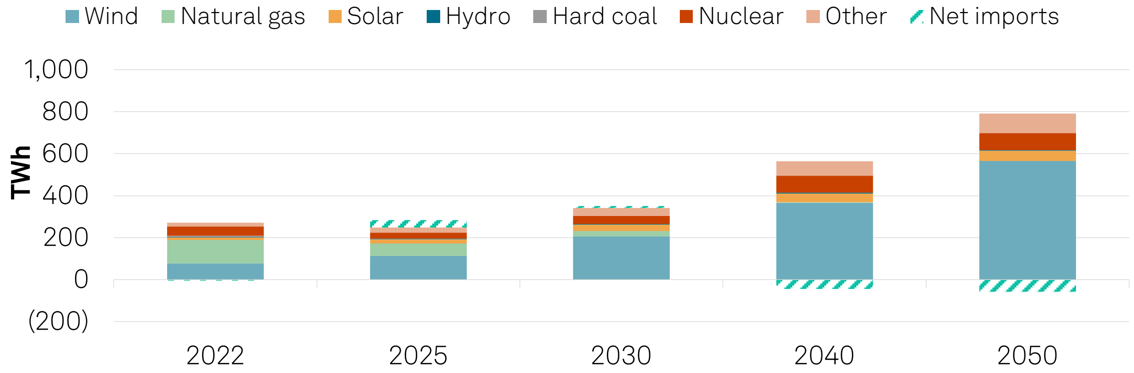
Wind and solar capacity increasing swiftly



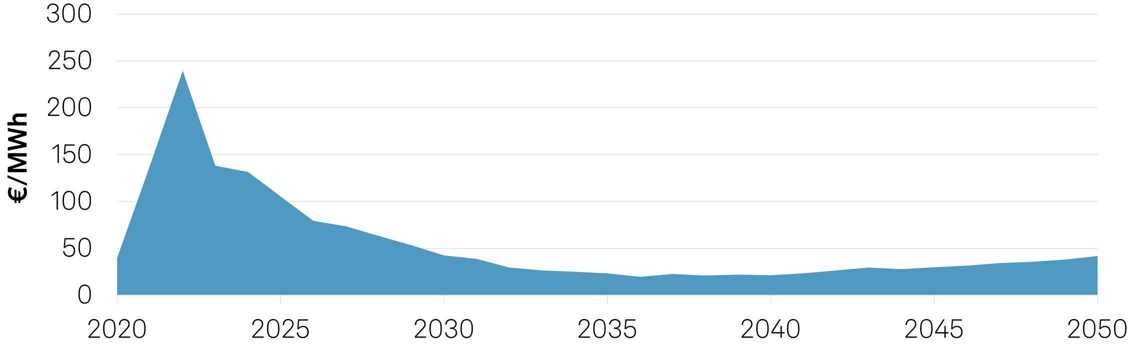
Strong growth in power demand after years of decline



Wind, and not solar or nuclear, is key to supply growth



Sustained prices until the mid-2020s, then decline



GW--Gigawatt. MWh--Megawatt hours. TWh--Terrawatt hours. Source: S&P Global Commodity Insights, Global Integrated Gas Demand Model (GIEM), and European LT Gas Report.

S&P Global Ratings

U.K. | Electricity Transmission Networks | Strong Regulatory Advantage

Overview of the regulation

Regulator:	Ofgem
Key rated players:	National Grid Electricity Transmission (NGET), Scottish Hydro Electric Transmission (SHET), Scottish Power Transmission Ltd. (SPTL).
Tariff-setting methodology:	• Total expenditure, regulatory asset value based. Capital expenditure set by the regulator at inception of the regulatory period. • Allowed return on capital of 3.17%* (SHET) and 3.20%* (NGET/SPTL) with company specific adjustments possible.

Regulatory timeline

RIIO-ET1
2013-2021

RIIO-ET2
2021-2026

CPIH basis--average WACC over RIIO-ET2 as of December 2022.

Regulatory advantage overview

Very credit supportive

Less credit supportive

Regulatory stability

- Advanced and predictable regulation.
- Strong regulatory track record for more than 30 years.

Tariff setting

- Regulator interacts in an open and transparent way with regulated utilities.
- First regulatory drafts published well before the new regulatory period.
- Current regulatory period, RIIO-ET2, based on auditable formula, allowing companies to earn fair returns.

Financial stability

- Full and timely recovery of all allowed costs.
- Work in progress capital expenditure can enter into the regulatory asset base.

Regulatory independence

- Ofgem has a strong track-record of independence.
- Regulator engages with all stakeholders in an open and transparent way.
- Possibility of regulatory appeal to the Competition and Markets Authority (CMA).

U.K. Electricity Distribution | Strong Regulatory Advantage

Overview of the regulation

Regulator:	Ofgem
Key rated players:	National Grid Electricity Distribution (NGED), U.K. Power Networks (UKPN), Scottish and Southern Electricity Networks (SSEN), Scottish Power Energy Networks (SPEN), Northern Powergrid Holdings (NPgH), Electricity North West (ENW).
Tariff-setting methodology:	• Total expenditure, regulatory asset value based. Expenditure set by the regulator at inception of regulatory period. • WACC of 3.93%* (CPIH basis) with company specific adjustments possible§.

Regulatory timeline

RIIO-ED1
2015-2023

RIIO-ED2
2023-2028

**On average 3.90% for frequent issuers of debt over RIIO-ED2: EMID (part of NGED), EPN (part of UKPN) and SSES (part of SSEN). §Ofgem updates the cost of debt allowances annually using cost of debt indices.*

Regulatory advantage overview

Very credit supportive — Less credit supportive

Regulatory stability

- Advanced and predictable regulation.
- Strong regulatory track record for more than 30 years.

Tariff setting

- Regulator interacts in an open and transparent way with regulated utilities.
- First regulatory drafts published well before the new regulatory period.
- Current regulatory period, RIIO-ED2, based on auditable formula, allowing companies to earn fair returns.

Financial stability

- Full and timely recovery of all allowed costs.
- Work in progress capital expenditure can enter into the regulatory asset value.

Regulatory independence

- Ofgem has a strong track record of independence.
- Regulator engages with all stakeholders in an open and transparent way.
- Possibility of regulatory appeal to the CMA.

Electricity North West Ltd.

Issuer Credit Rating: BBB+/Negative/A-2

Analyst: Gustav B Rydevik

Company description

- ENW operates a distribution network in northwest England that provides electricity to about 5 million domestic and business customers, including 2.4 million homes.
- Its network consists of 12,519 kilometers (km) of overhead power lines, 44,872 km of underground electricity cables, 86,000 items of switchgear, and 34,000 transformers.
- Regulatory asset value of about £2.5 billion as of March 31, 2023.

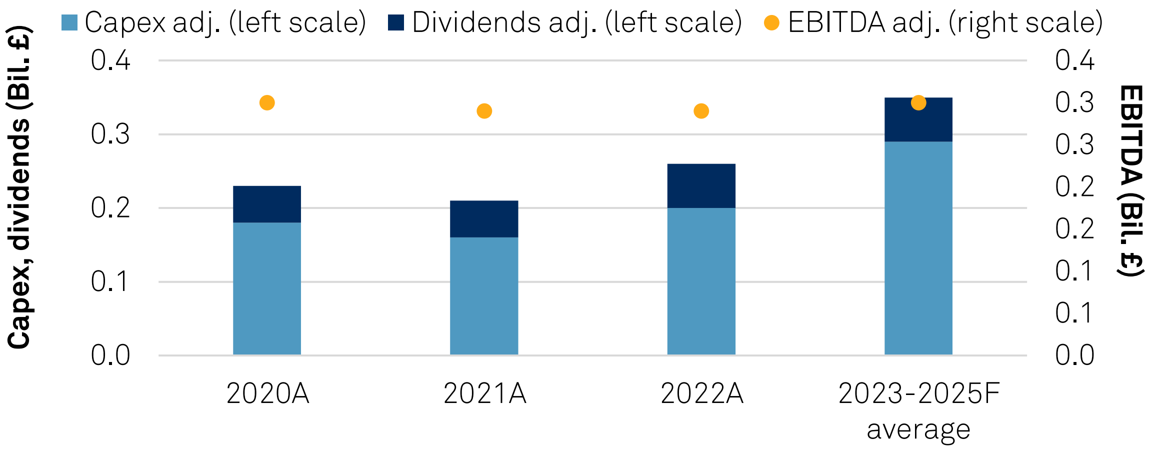
Rating drivers

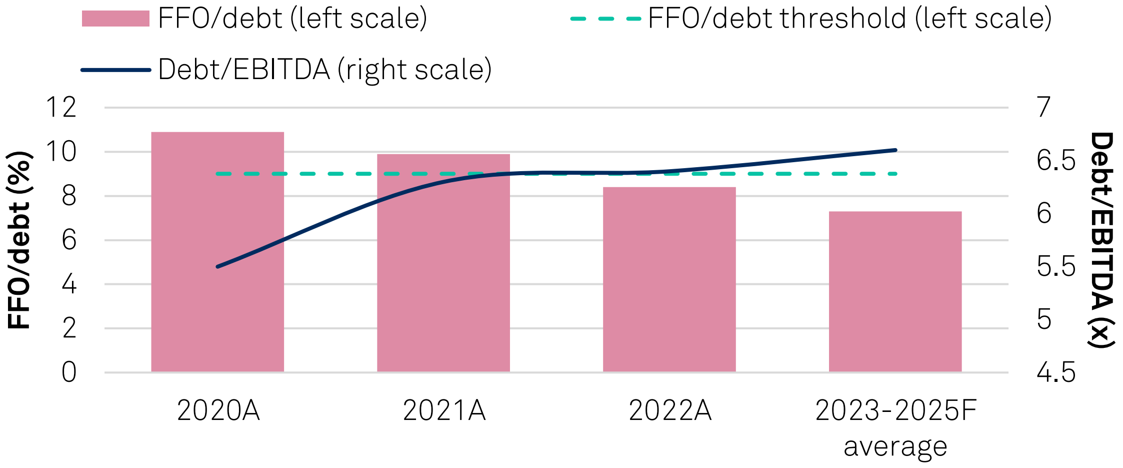
- Electricity distribution networks faced a tougher regulatory update this year, with RIIO-ED2 that came into effect in April 2023.
- New electricity assets depreciate over 45 years, a longer period that lowers profitability in the medium term.
- Across the sector, Ofgem increased the total expenditure (totex) allowance by an average of 6% more compared with the draft determination.
- High gearing, of about 90% across ENW's parent companies, constrains its credit metrics.
- Potential upside from our base case, given ENW's strong performance during the previous regulatory period, RIIO-ED1.

Outlook: Negative

- FFO-to-debt below 9%.
- Unable to outperform against its regulatory settlement as much as during RIIO-ED1.
- Inflation is more elevated or more persistent than we currently expect.

- ENW's totex or operational performance during the first and second year of RIIO-ED2 is sufficient to provide insight into future performance and reassurance that the group will maintain FFO-to-debt above 9% for the rest of the regulatory period.





Note: All metrics based on NWEN (Jersey) Ltd. Consolidated Figures. A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2022 Latest Report: U.K.-Based Electricity North West Ltd. Outlook To Negative As Inflation Hits Metrics Ahead Of New Regulatory Period, Dec. 23, 2022.

S&P Global Ratings

National Grid PLC

Issuer Credit Rating: BBB+/Stable/A-2

Analyst: Gustav B Rydevik

Company description

- National Grid (NG) owns and operates regulated electricity and gas networks in the U.K. and transmission and distribution utilities in the U.S.
- More than 90% of underlying operating profit comes from those low-risk regulated activities.
- Regulatory asset value of £51.2 billion as of March 31, 2023.

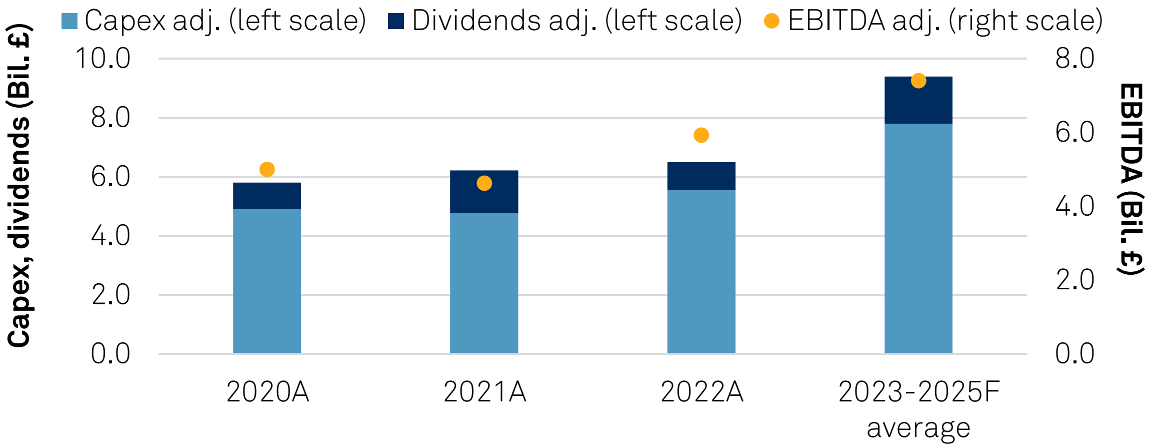
Rating drivers

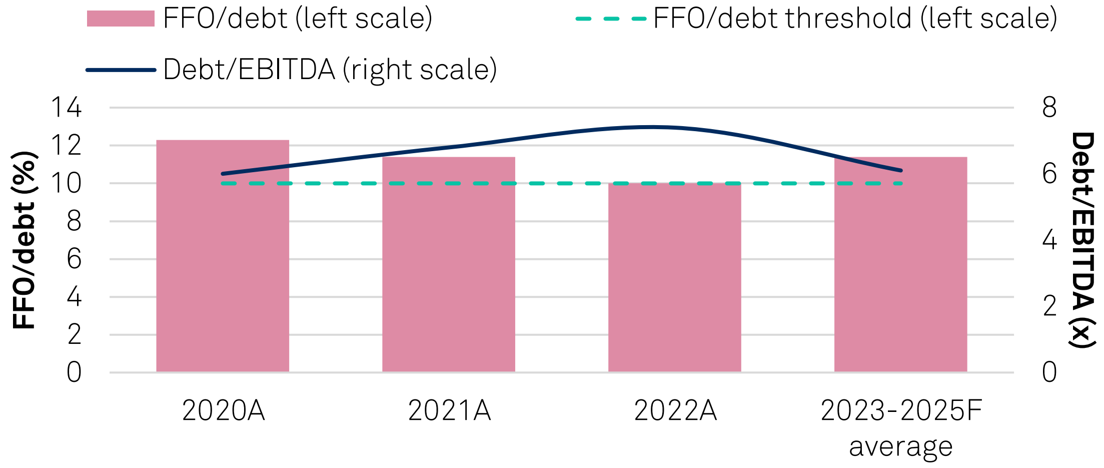
- Regulatory asset base growth of 8%-10% annually.
- We continue to expect credit metrics in line with expectations for the current rating despite capex acceleration.
- NG's five-year strategic plan started strongly and includes plans to increase capex.
- The current electricity distribution regulatory period (RIIO- ED2) will likely lower NG's cash flow generation/earnings from NGED.
- Ofgem's confirmation of Accelerating Strategic Transmission Infrastructure (ASTI) projects will provide NG with an opportunity to further grow its U.K. network activities.

Outlook: Stable

- Sustained and extended decline in FFO to debt to <10%.
- This could occur if operating costs sustainably exceed expectations or if NG is not able to achieve expected returns in its various regulatory jurisdictions.

- Maintaining FFO to debt > 13%.
- Demonstrating above-average operating performance.
- Having a clear plan to transition operations toward net zero.
- Contingent on the continued integration of NGED into NG’s portfolio.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Fiscal year ends in March 2022. Latest Report: National Grid PLC, May 11, 2023.

S&P Global Ratings

Northern Powergrid Holdings Co.

Issuer Credit Rating: A/Negative/A-1

Analyst: Gustav B Rydevik

Company description

- NPgH's electricity distribution network provides power to 4 million homes and businesses in northeastern England, Yorkshire, and northern Lincolnshire.
- NPgH generates most of its revenue through regulated activities--only about 10% of 2022 operating profit was derived from nonregulated businesses.
- NPgH's ultimate parent, BHE, is a U.S-based diversified energy company that owns numerous energy business platforms. BHE is 92% owned by Berkshire Hathaway Inc.
- Regulatory asset value of about £4.2 billion as of Dec. 31, 2022.

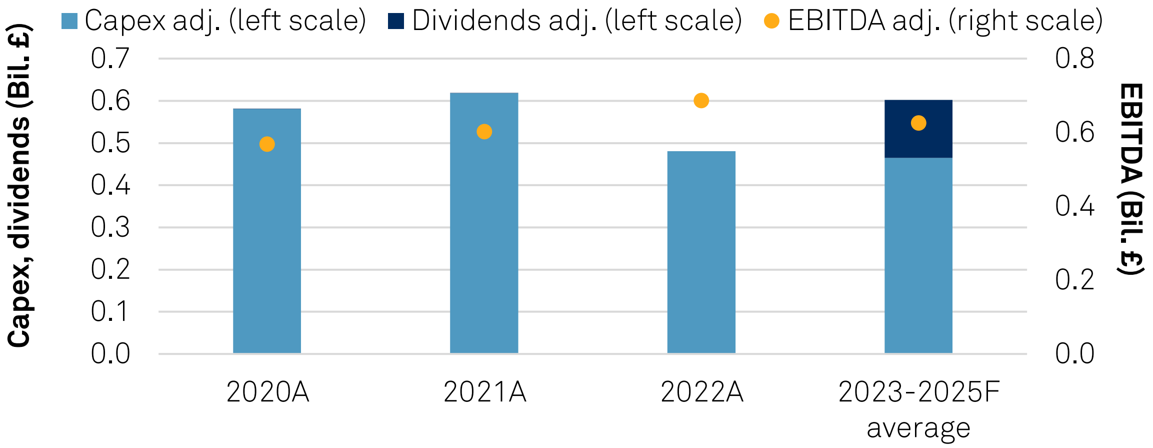
Rating drivers

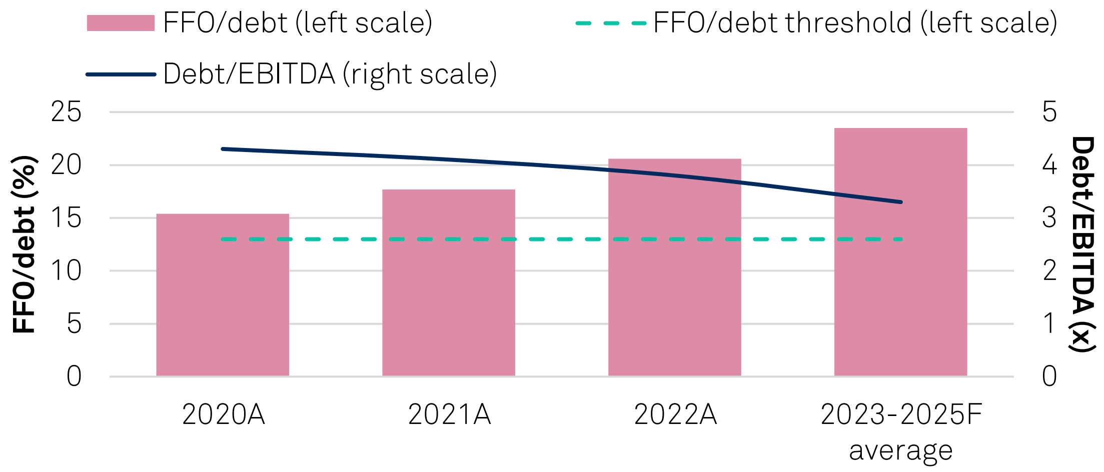
- The rating on NPgH's parent, U.S.-based BHE, is a key driver of the rating on NPG.
- All the entities in the NPgH group are considered core to BHE.
- That said, we regard the U.K.-based group as being insulated from the wider group.
- Investment needs remain considerable, and we expect dividend distributions will be limited.
- A tougher regulatory environment is the biggest medium-term risk for electricity distribution networks.
- Revenue diversification could be credit dilutive for NPgH in the long-run.

Outlook: Negative

- A lower rating on BHE.
- BHE's FFO to debt under 13%.
- Increasing BHE's business risk without any offsetting financial improvement.
- EBITDA from unregulated activities consistently exceeding 15% of total EBITDA.
- Unregulated activities FFO to debt under 13% for a prolonged period.

- Improvement to BHE's rating.
- BHE able to maintain its financial measures without increasing its business risk.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: Northern Powergrid Holdings Co. Outlook To Negative, In Line With Parent; Opco Outlooks Remain Stable, June 26, 2023.

S&P Global Ratings

U.K. Power Networks Holdings Ltd.

Issuer Credit Rating: A-/Stable/--

Analyst: Gustav B Rydevik

Company description

- UKPN's three electricity distribution network operators provide electricity to about 8.3 million homes in southeastern England, Greater London, and eastern England.
- UKPN is the largest distribution network operator (DNO) holding company in the U.K.
- 6% of the EBITDA comes from nonregulated network activities through its intermediate company UKPNS.
- Owned by a consortium led by Hong Kong-based CKI group.
- Regulatory asset value of about £8.1 billion as of March, 2023.

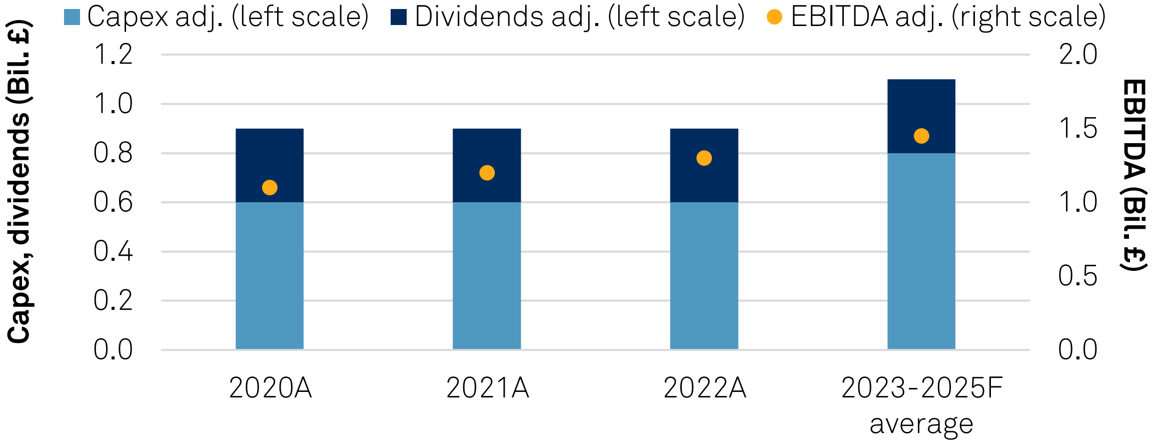
Rating drivers

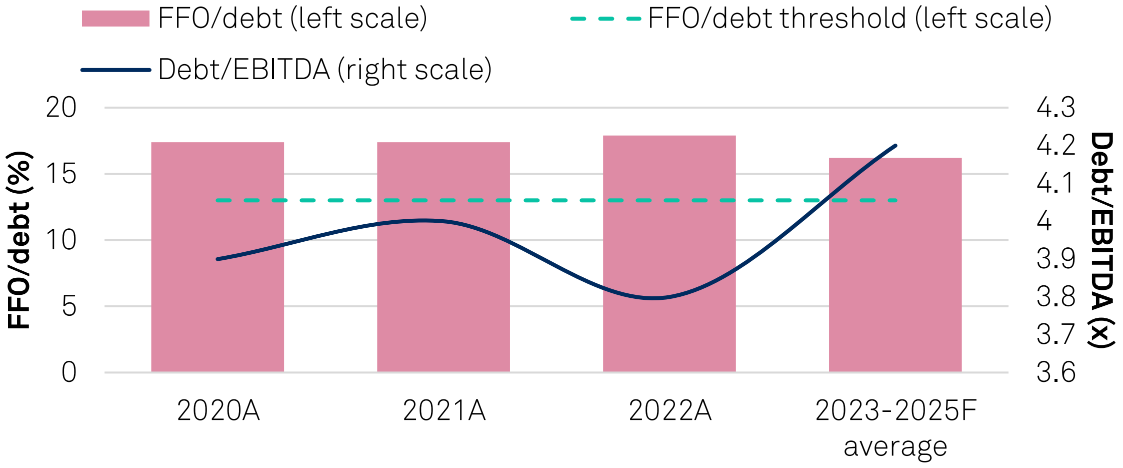
- Given strong operational performance in RIIO-ED1, we see limited underperformance risk in RIIO-ED2.
- However, we expect lower credit metrics during the RIIO-ED2 regulatory period, which started April 2023. Revenue is likely to remain relatively stable over 2023-2026, while EBITDA margins will decline slightly on reduced returns.
- Greater investment needs and rising debt will weigh on the key financial metrics.
- Slower depreciation of new electricity assets will cut into short-term profitability.
- Total returns will increase, in absolute terms, but will be delayed. The resulting dip in profitability will affect UKPN during and beyond RIIO-ED2.

Outlook: Stable

- 13% FFO to debt minimum expectation
- Challenging operating conditions over the regulatory period that started in 2023.
- An aggressive dividend policy leading to lower-than-expected DCF.
- Downgrade of parent CK Infrastructure Holdings Ltd. (CKI; A/Stable/--).

- Operating performance stronger than expected and more financial support from CKI, leading to positive DCF to debt.
- Upgrade of CKI without a downward revision of UKPN's strategic importance to its parent.

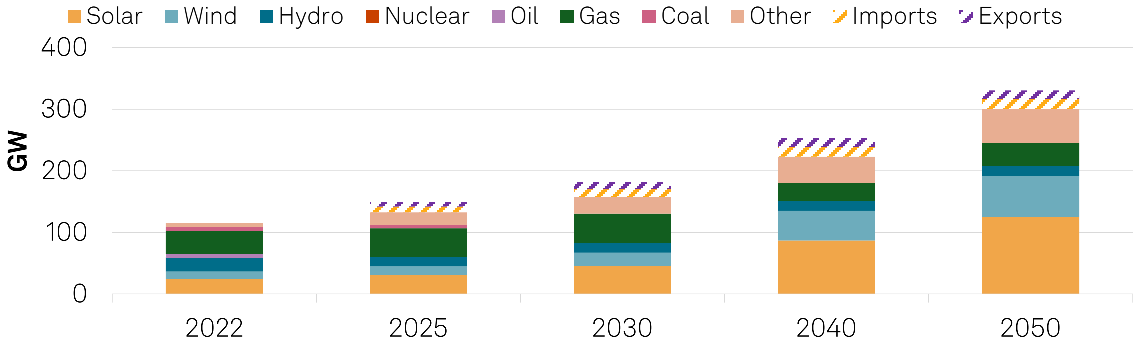




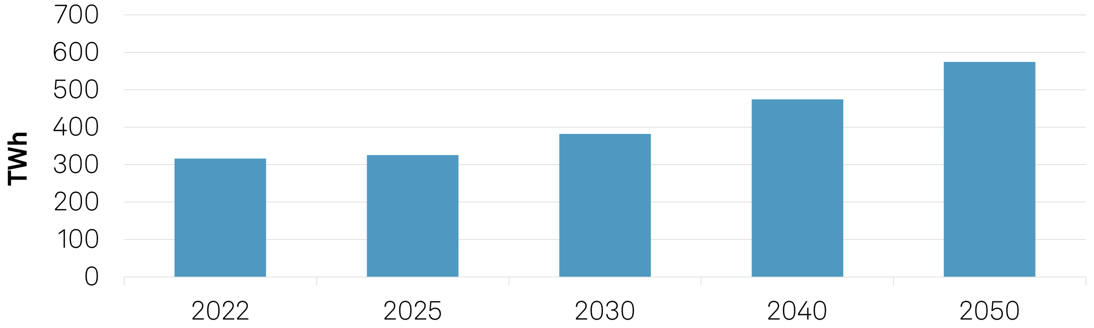
A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2022. Latest Report: U.K. Power Networks Holdings Ltd, April 13, 2023.

Italy | Power Demand and Generation Mix Trends

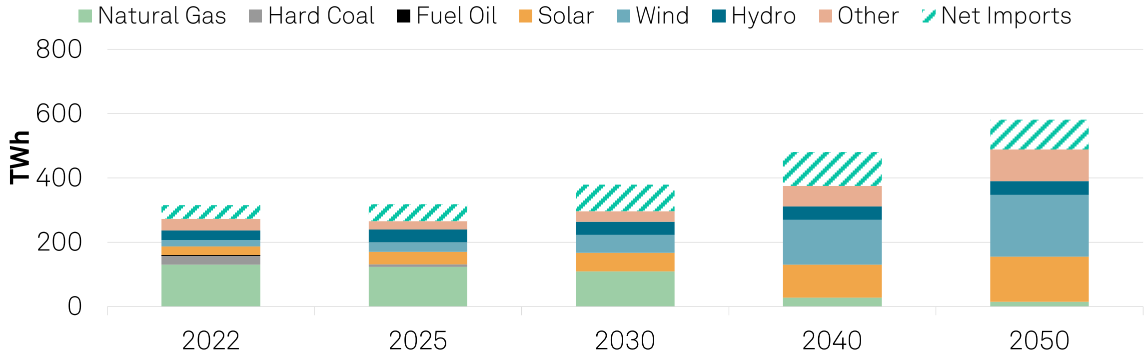
Italy's gradually increasing solar and wind capacity



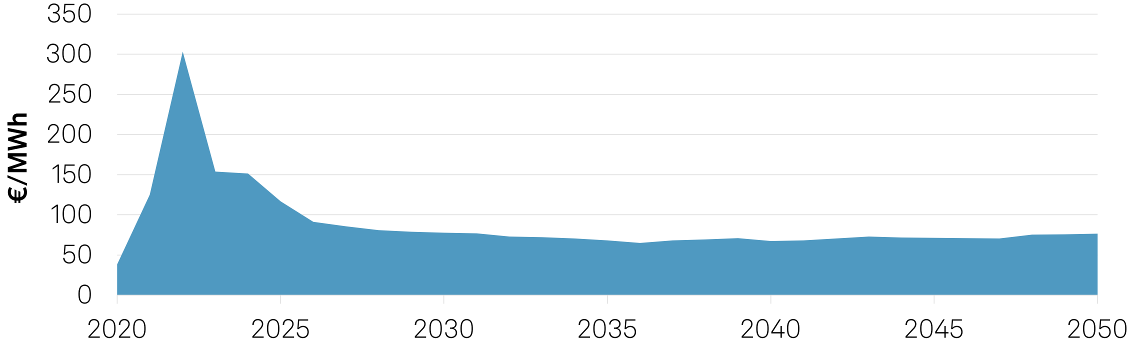
Power demand growth is slower than peers (except France)



Italy keeps gas-to-power active for longer than peers



Power prices likely to remain higher than in other countries



GW--Gigawatt. MWh--Megawatt hours. TWh--Terrawatt hours. Source: S&P Global Commodity Insights, Global Integrated Gas Demand Model (GIEM) and European LT Gas Report.

Italy | Electricity Transmission And Distribution Networks | Strong Regulatory Advantage

Overview of the regulations

Regulator:	Autorità di Regolazione per l' Energia, le Reti e l' Ambiente (ARERA)
Key rated players:	TSO: Terna. DSOs: Enel, A2A, Iren, Hera.
Tariff-setting methodology:	• Rate of return on RAB method (WACC on RAB). • Pre-tax real WACC (electricity transmission): 5%. • Pre-tax real WACC (electricity distribution): 5.2%.

Regulatory timeline

- First regulatory period 2000-2003
- Second regulatory period 2004-2007
- Third regulatory period 2008-2011
- Fourth regulatory period 2012-2015
- NPR1 2016-2019
- NPR2 2020-2023
- Fifth regulatory period 2016-2023

Regulatory advantage overview

Very credit supportive | Less credit supportive

Regulatory stability

- Advanced and predictable regulation.
- Strong regulatory track record for more than 23 years.

Tariff setting

- Regulator interacts in an open and transparent way with regulated utilities.
- First regulatory drafts published well before the new regulatory period.
- WACC in line with the one applied by countries characterized by a high-country risk premium.
- Regulation to evolve gradually to totex from next regulatory period (2024).

Financial stability

- Full and timely recovery of all costs despite significant investments ahead.
- The framework has a track record of no tariff deficits.
- Operators receive fair remuneration for works in progress (WIP): ARERA allows remuneration for the first four years of the project's capitalization for power transmission.
- WACC is automatically updated in case of more than 50 bps change in formula outcome due to change in macroeconomic conditions.

Regulatory independence

- Strong track record of independence.
- ARERA's governing body consists of a president and four members, who are nominated by Italy's president based on proposals made by the relevant ministries.
- ARERA performed in a timely and transparent manner, despite instability of the political landscape.

S&P Global Ratings

Terna SpA

Issuer Credit Rating: BBB+/Stable/A-2

Analyst: Federico Loreti

Company description

- Europe's largest independent energy transmission grid operator, with about 75,000 km of high-voltage lines across Italy.
- Activities are mainly domestic, predominantly regulated, and encompass grid operation, maintenance, and development.
- RAB (including work in progress) amounted to €18.1 billion at year-end 2022.
- State-owned CDP indirectly owns about 18% of Terna through majority-owned CDP Reti, which directly owns 29.85% of Terna.

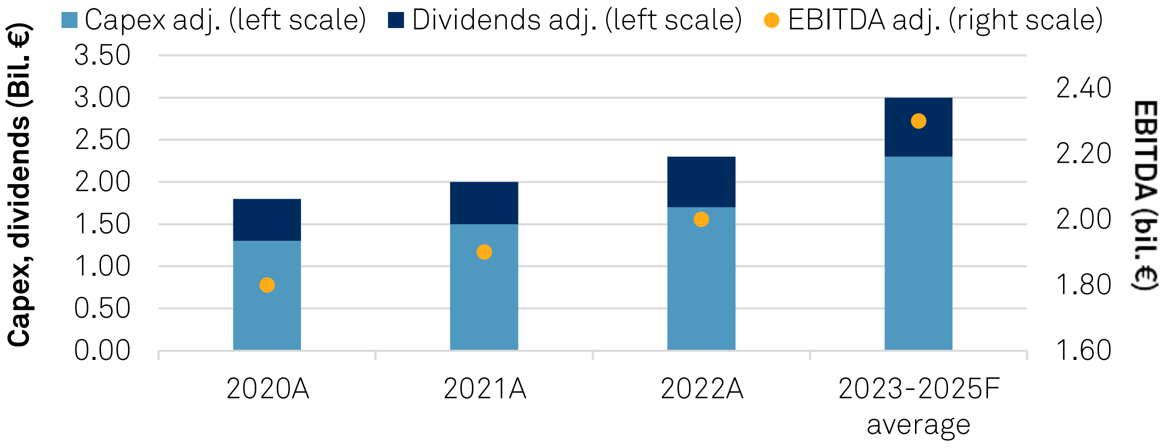
Rating drivers

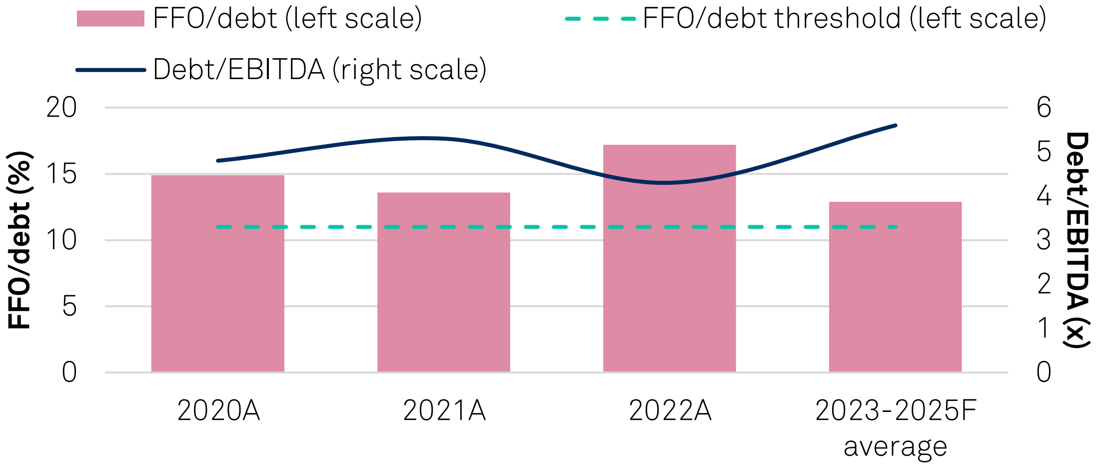
- 2022 results were above expectations, increasing financial headroom as the company prepares for higher capex.
- WACC next year should increase to as much as 5.8% from 5%.
- More visibility on next regulatory period (2024-2031) by the end of this year will lead us to reassess our base case for 2024-2025.
- Investments increasing as the energy transition creates demand for additional network capacity and flexibility, as evidenced in the 10-year development plan for 2023-2032.
- The rating remains capped by Italy's credit quality.

Outlook: Stable

- A one-notch downgrade of Italy would trigger a one-notch downgrade of Terna.
- A one-notch downward revision of the SACP if FFO to debt is below 11% in the next two years.

- S&PGR upgrades Italy, all else being equal.
- An ‘a’ SACP (if FFO to debt > 14% sustainably) would leave the rating unchanged as Terna can exceed Italy by only one notch.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: Terna SpA, June 20, 2023.

A2A SpA

Issuer Credit Rating: BBB/Stable/A-2

Analyst: Pauline Pasquier

Company description

- Multi-utility operates in the production, sale, and distribution of gas, electricity, and district heating, as well as environmental services and the integrated water cycle.
- 2022 revenue of €23.2 billion and EBITDA of €1.5 billion.

Rating drivers

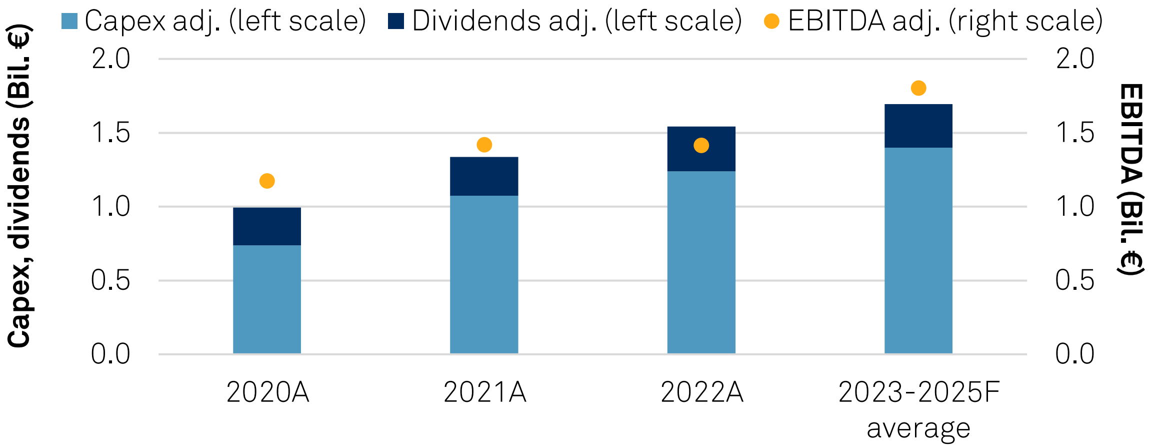
- Deleveraging stems from double-digit EBITDA growth from contracted and merchant activities, with potential upside from 2024 acceleration of renewables.
- Rapid transition of mix toward more merchant activities with strongly regulated business contributing <25%, even if contracted activities (about 25%) consolidate the business.
- Resilience of business mix and public commitment to current ratings is key.

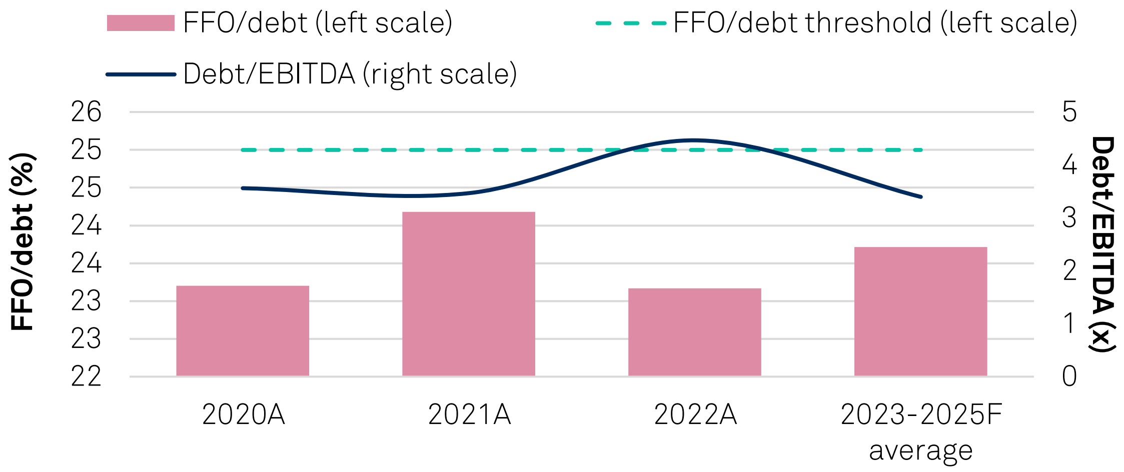
Outlook: Stable

- FFO to debt <25% on average due to lower investment returns or weaker operating performance than anticipated, or sizable debt-funded acquisitions, or eroded contribution from regulated operations, or quality of generation assets.
- A one-notch downgrade of Italy would not automatically trigger a one-notch downgrade of A2A.

Continuous strengthening of the business risk profile and growth, primarily stemming from:

- Strongly regulated activities (essentially gas, electricity, water distribution, and waste collection) increasing to about 35% of the business mix.
- A benign operating environment in the Italian market; and
- FFO to debt well above 30%.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: Italian Multi-Utility A2A SpA Outlook Revised To Stable On Improving Credit Metrics; Affirmed At 'BBB/A-2', Sept. 08, 2023.

Enel SpA

Issuer Credit Rating: BBB+/Negative/A-2

Analyst: Claire Mauduit-Le Clercq

Company description

- Leading integrated power utility in Italy where it generates, distributes, and sells electricity and gas that accounted for 32% of its 2022 reported EBITDA.
- Global generation capacity of about 88 gigawatts (GW), as of June 30, 2023, of which 67% (about 59 GW) consisted of renewable power capacity--primarily hydro, followed by wind and solar.
- Enel distributed 508 Terrawatt hours (TWh) of electricity in 2022, to about 73 million end users mainly in Italy, Spain, Romania, and Latin America. RAB of about €45 billion.
- 23.6% owned by Italy's Ministry of Economy and Finance.

Rating drivers

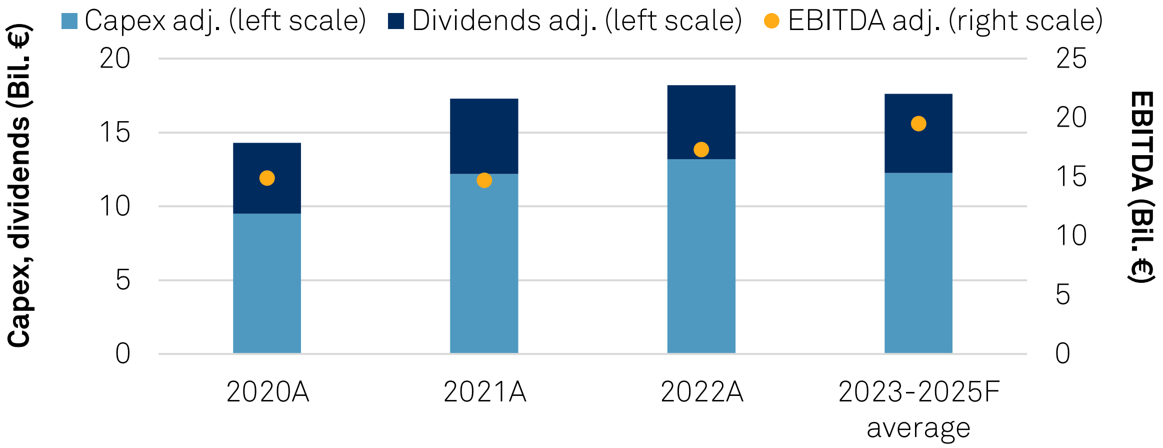
- Credit metrics under pressure in 2023 despite good results in first-half 2023.
- First half 2023 results evidenced Enel's good operating performance, notably the recovery of retail activities.
- Asset sales program execution is key to alleviating debt growth and restoring credit metrics in line with the rating.
- With new governance in place, since the nomination of the board in May 2023, our base case anticipates continuity in Enel's strategic direction and financial policy.

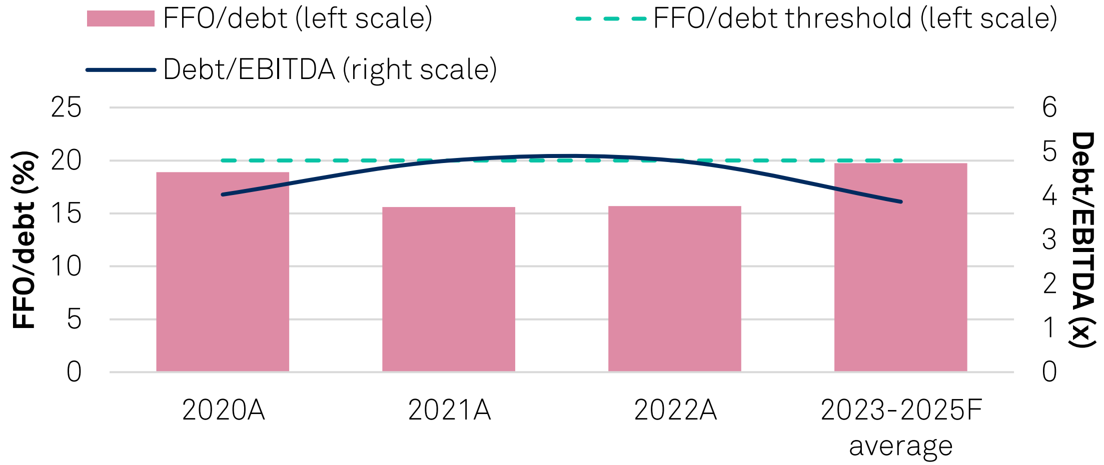
Outlook: Negative

A downgrade could occur if:

- FFO/debt did not recover to 20% in 2023 (18% on a proportional basis) or if adequate liquidity was not maintained.
- Enel faced prolonged adverse regulatory and fiscal measures in its core markets.
- Disposals slowed or were realized at lower values without sufficient remedy measures.

- The group restores consolidated FFO to net debt above 20%.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. ***FFO/Debt threshold on a fully consolidated basis.*** *. Latest Report: Enel SpA,* ***June 23, 2023.***

S&P Global Ratings

Hera SpA

Issuer Credit Rating: BBB+/Stable/A-2

Analyst: Federico Loreti

Company description

- One of Italy's largest domestic utilities, operating in more than 350 municipalities in eight regions in northern and central Italy.
- Operates in four main core businesses: gas (41% of 2022 statutory EBITDA), electricity (6%), waste (28%), and water (22%). About 50% of EBITDA comes from fully-regulated activities.
- 46% owned by 111 of the municipalities Hera serves.
- RAB for its electricity distribution activities was €375 million at end-2022.

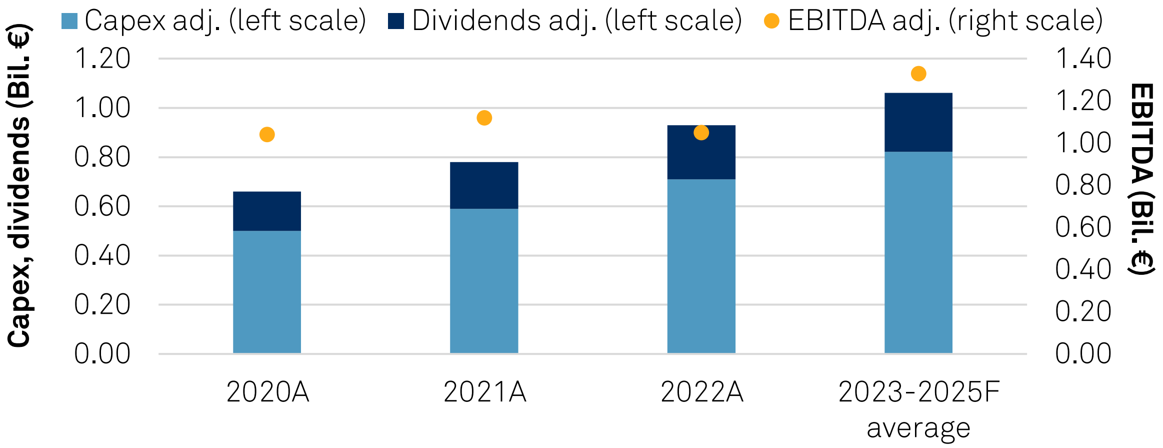
Rating drivers

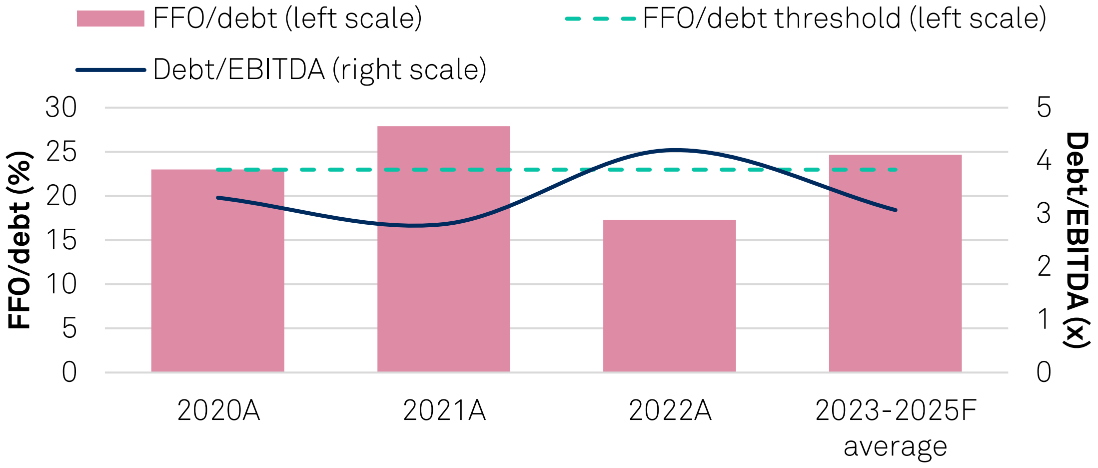
- We expect credit metrics to bounce back to be in line with S&PGR's threshold in 2023.
- Strategic priorities are the waste and networks segments.
- Short position in generation is offset by stable earnings from regulated activities and strong position in waste treatment.
- The rating remains capped at one notch above our rating on Italy.

Outlook: Stable

- FFO to debt (including income from last-resort clients) falls below 23% over a prolonged period.
- Italy's economic environment turns more negative or there are continued severe disruptions to energy markets.

- Although unlikely in the short term, SACP is revised upward if Hera strengthens its credit metrics and achieves FFO to debt at or above 30% on a sustainable basis; and
- We upgrade Italy.





Note: financials for 2022 are affected by one-offs related to the energy crisis, without which FFO-to-debt would be close to 22%. A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: Italian Multi-Utility Hera Affirmed At 'BBB+' On Expected Rebound In Credit Ratios This Year; Outlook Stable, May 25, 2023.

Iren SpA

Issuer Credit Rating: BBB/Stable/--

Analyst: Federico Loreti

Company description

- One of Italy's largest multi-utility companies, operating mainly in the northwestern regions of the country.
- Present in four core businesses: networks (39% of 2022 EBITDA), energy and district heating (34%), waste (25%), retail and other services (2%). Close to 60% of EBITDA comes from fully regulated activities.
- Its shareholders are for more than 50% municipalities (mainly Genoa, Turin, and Reggio Emilia) and 45% free floating.
- RAB for its electricity distribution activities amounted to €502 million as of end-2022.

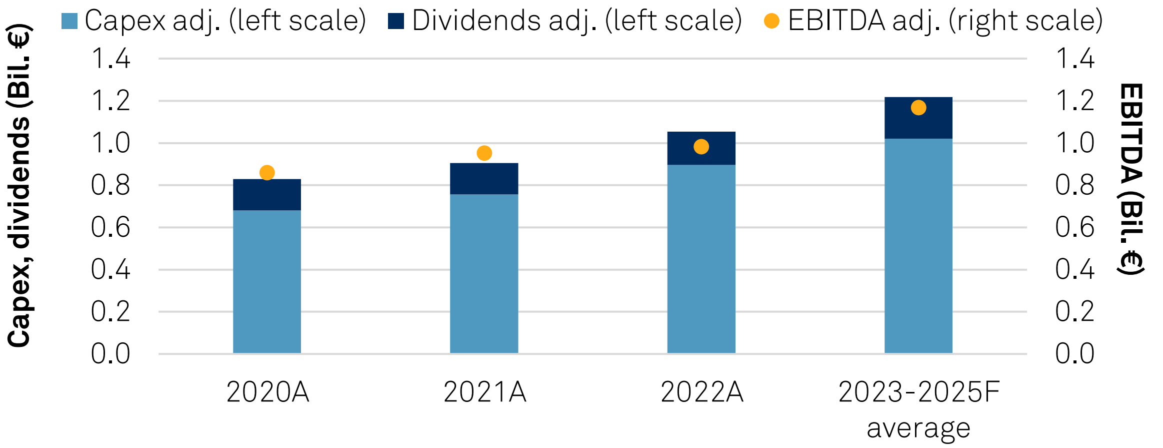
Rating drivers

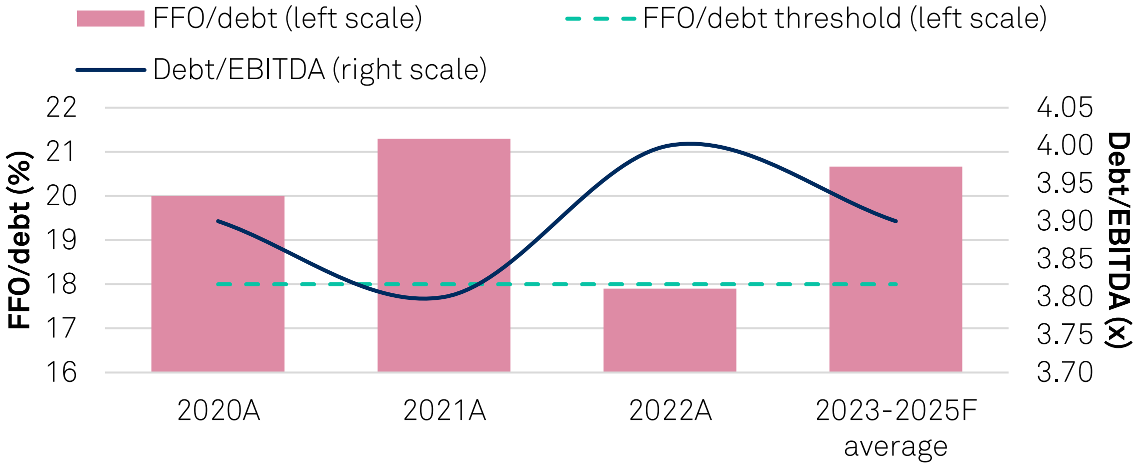
- Iren's year-to-date results for 2023 confirmed our expectations for the full year, with working capital a key item to monitor, after its integrated model showed resilience during the energy crisis.
- The business plan has a strong focus on regulated networks and renewables until 2030.
- Well balanced financial policy, with commitment to preserve strong financials.
- The recent change to top management, though unanticipated, is neutral to the rating.

Outlook: Stable

- Consolidated FFO to debt falls below 18% over a prolonged period.
- Italy's economy turns more negative or if energy markets experience further disruptions, although this is not part of our base-case scenario.

- Although unlikely in the next two years, we could raise our rating if Iren strengthens such that it achieves consolidated adjusted FFO to debt above 23%.



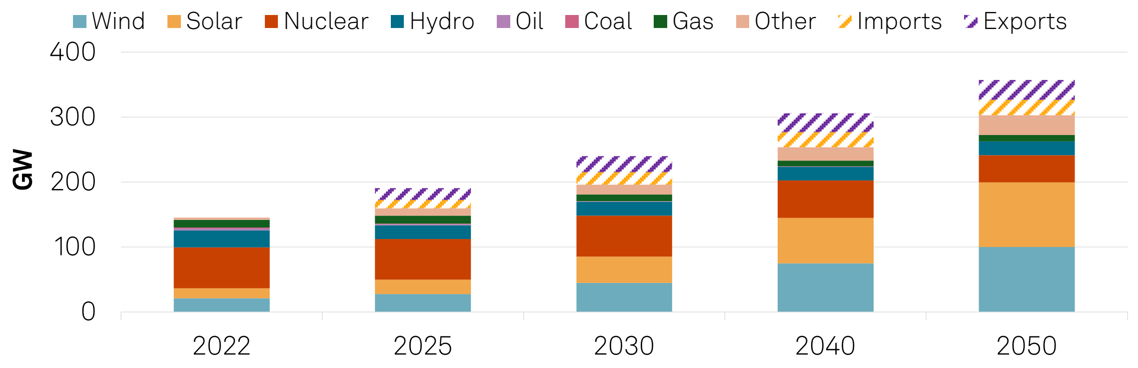


Note: Financials for 2022 are affected by exceptional costs from regulatory intervention for €107 million. Without these, FFO to debt would have been 20.6%. A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends December 31, 2022. Latest Report: Iren SpA, July 10, 2023.

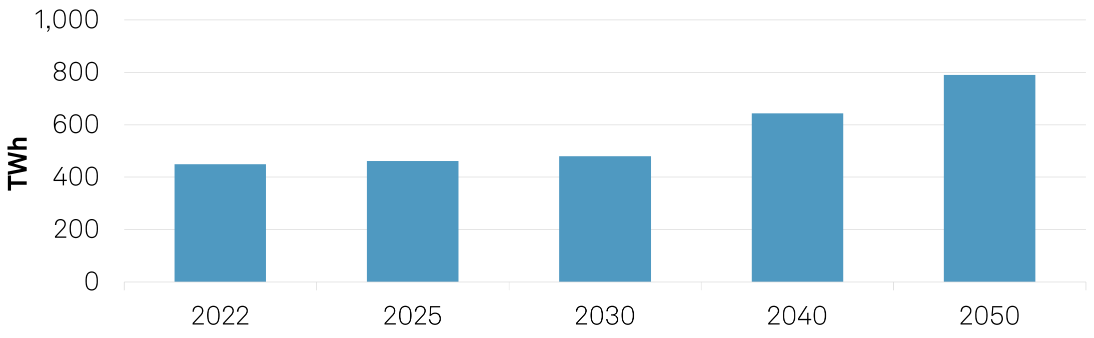
S&P Global Ratings

France | Power Demand and Generation Mix Trends

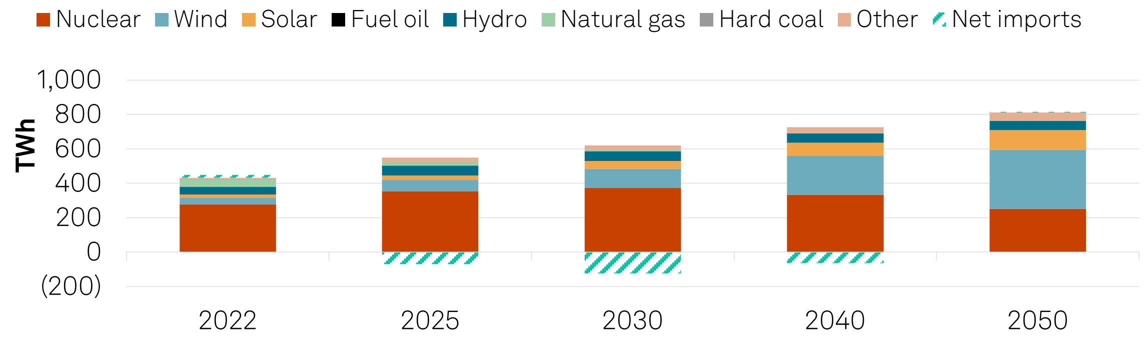
Increased solar and wind, but from low levels



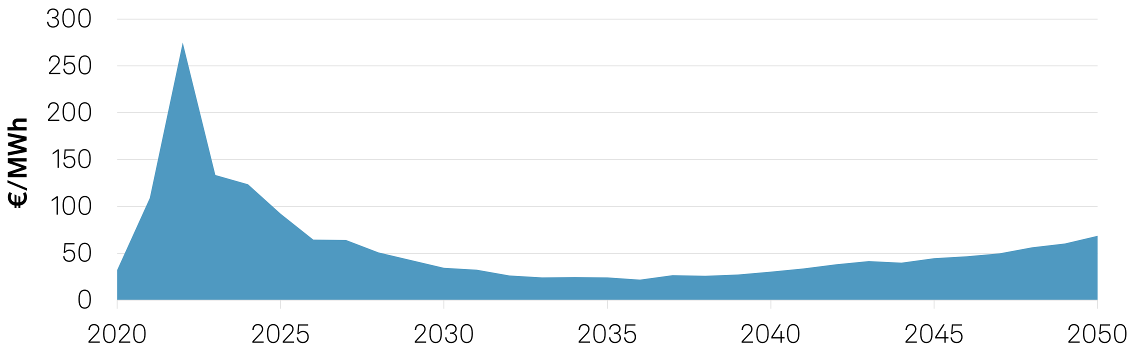
Electrification will develop slower than elsewhere due to an already-high base



Generation will remain predominantly nuclear through to 2040



Prices will fall significantly and be the lowest in Western Europe



GW--Gigawatt. MWh--Megawatt hours. TWh--Terrawatt hours. Source: S&P Global Commodity Insights, Global Integrated Gas Demand Model (GIEM) and European LT Gas Report.

S&P Global
Ratings

France | Electricity Transmission And Distribution Networks | Strong Regulatory Advantage

Overview of the regulations

Regulator:	Commission de Regulation de l'Energie (CRE)
Key rated players:	TSO: RTE (50.1% owned by EDF indirectly via Coenterprise de Transport d'Elecriticité (CTE)). DSO: Enedis (100% owned by EDF).
Tariff-setting methodology:	• Rate of return on RAB method (WACC on RAB). • WACC (electricity transmission): 4.6%. • WACC (electricity distribution): 7.25% (nominal, pre-tax).

Regulatory timeline

- First regulatory period 2002-2005
- Second regulatory period 2005-2009
- Third regulatory period 2009-2013
- Fourth regulatory period 2013-2017
- Fifth regulatory period 2017-2021
- Sixth regulatory period 2021-2025

Regulatory advantage overview

Very credit supportive — Less credit supportive

Regulatory stability

- Predictable and transparent framework.
- Strong regulatory track record for more than 20 years.
- Tariffs for power transmission and distribution for TURPE 6 have been determined following the same remuneration formula and same parameters as during TURPE 5.

Tariff setting

- Regulator interacts in an open and transparent way with regulated utilities.
- On top of RAB remuneration, the regulator sets out incentive mechanisms to encourage operators to actively manage controllable costs and thus improve their performance.

Financial stability

- Full and timely recovery of all costs.
- Low earnings volatility for electricity operators throughout a regulatory period.
- Strong financial stability with projected increase in RAB allowing earnings' growth, despite lower WACC and manageable incentives.
- Works in progress are remunerated at nominal cost of debt before tax, with limited remuneration for distribution projects.

Regulatory independence

- Independent finances and annual board replacements for CRE.
- CRE is a body independent from the French government, showing a very low level of political interference.

RTE Réseau De Transport d'Electricité

Issuer Credit Rating: A/Stable/A-1

Analyst: Federico Loreti

Company description

- RTE owns, manages, and operates France's power transmission grid (high and very high voltage lines) and all the interconnections between France and neighboring countries. It owns 105,817 km of overhead and underground lines and 2,900 substations.
- Regulated activities account for close to 100% of its revenues.
- RAB was €15.6 billion, as of Jan. 1, 2023.

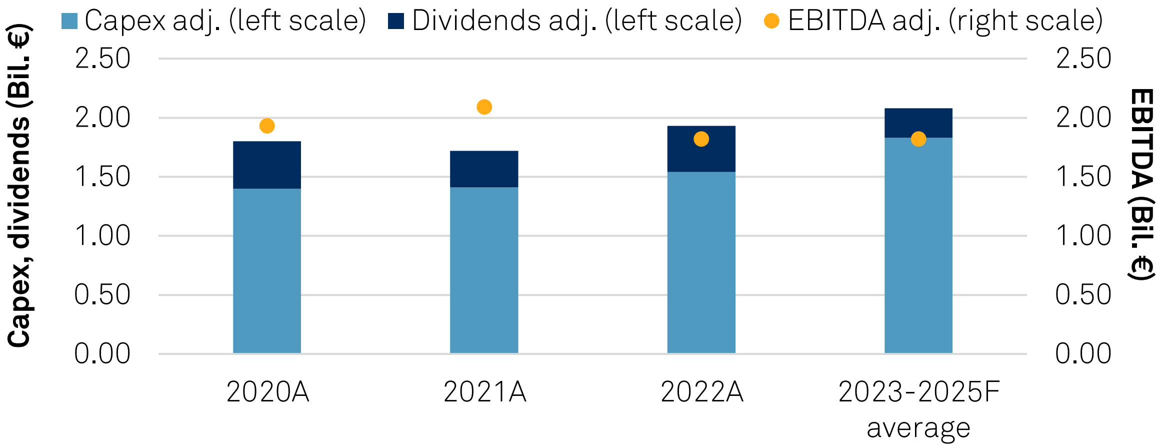
Rating drivers

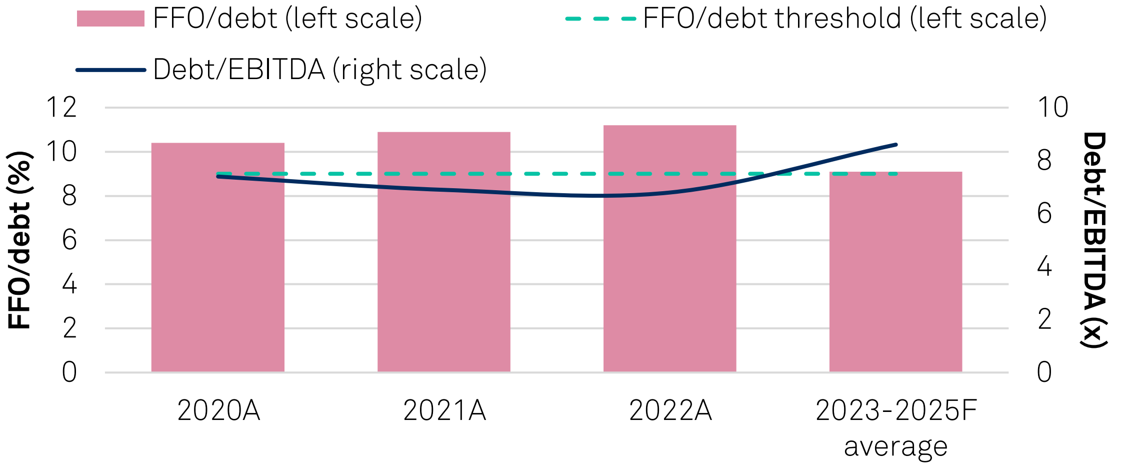
- Significant investment combined with relatively inflexible dividends will lead to an increase in debt and reduce rating headroom.
- Financial profile constrained by debt and interest at the holding company level.
- The next regulatory period will be key to determining metrics' trajectory post-2025.
- RTE, as France's sole power TSO, provides an essential public service and is a key enabler of renewable energy growth in the energy mix.
- RTE will continue to develop large interconnection projects.

Outlook: Stable

- RTE is unable to sustain FFO to debt above 9% on average without a material prospect of recovery.
- S&PGR simultaneously revises down the SACP by one notch, to 'bbb', and our rating on France is lowered to 'AA-'.

- Given the narrow headroom in credit metrics at 'bbb+' SACP, rating upside is remote at this stage.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: French Power TSO RTE 'A' Ratings Affirmed On Tight Headroom For Rising Debt; Outlook Stable, April 25, 2023.

Electricité de France S.A. (Enedis)

Issuer Credit Rating: BBB/Stable/A-2

Analyst: Emmanuel Dubois-Pelerin

Company description

- EDF owns and manages France's low- and medium-voltage public distribution network primarily through fully-owned Enedis.
- French regulated activities typically account for about one-third of consolidated EBITDA, notably through Enedis.
- On Jan. 1, 2021, EDF operated regulated asset base of €53.7 billion (excluding Linky).

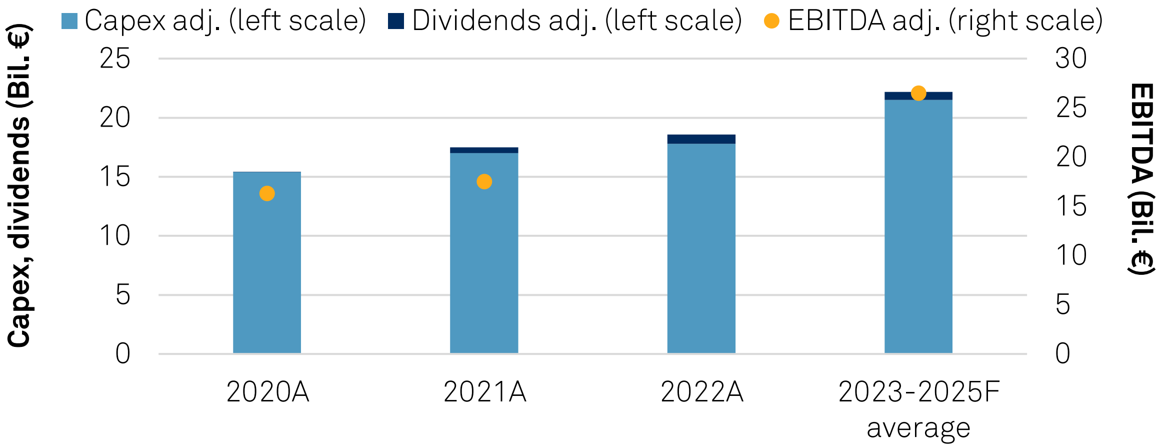
Rating drivers

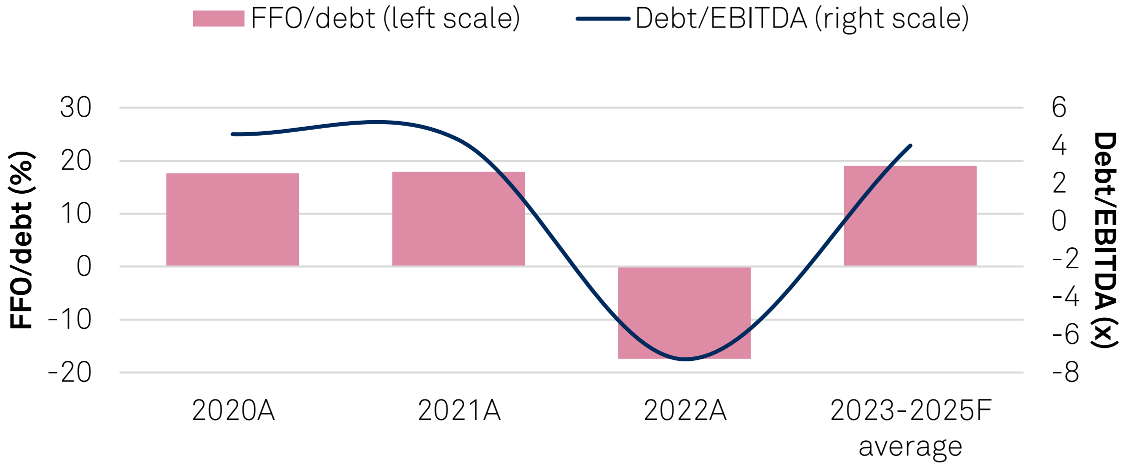
- Ageing and stress corrosion at EDF's domestic nuclear fleet weigh on its business risk profile and the SACP of 'bb-'.
- EDF's 2023-2025 cash generation outlook is supported by recovering domestic nuclear output and a favorable price environment. Longer-term remuneration prospects for the legacy and new nuclear fleet remain unclear.
- EDF's sizable capex continues to weigh on free cash flows and debt.
- S&PGR views the SACP as stable as it balances the above-mentioned credit negatives with several supportive factors, notably merchant prices, leverage that is trending down due to increasing EBITDA, and supportive shareholder actions.
- S&PGR views the likelihood of extraordinary French government support to EDF as very high.

Outlook: Stable

- Downside is currently somewhat limited.
- Barring a change in our views on extraordinary government support, a downgrade would be driven by a significant SACP deterioration.

- Barring a change in our views on government support, an upgrade could occur if we gained sufficient confidence that EDF has substantially resolved industrial challenges at the domestic nuclear fleet.
- The regulatory regimes for the legacy and new fleets provides sufficient clarity on remuneration.



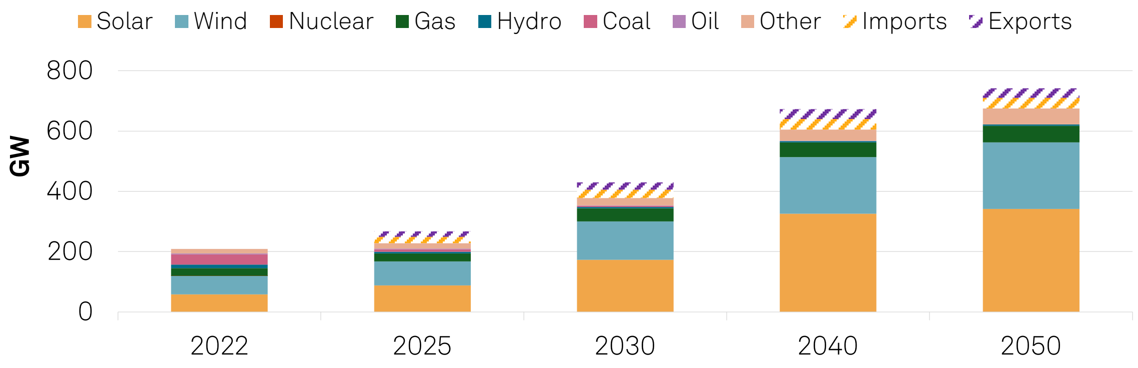


A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. S&PGR adjusted 2022A EBITDA and FFO/Debt were negative €13 billion and 17.4% respectively. S&PGR expects EDF to contain leverage within 5x in 2023 and 4.5x in 2024. Latest Report: Electricite de France S.A., June 30, 2023.

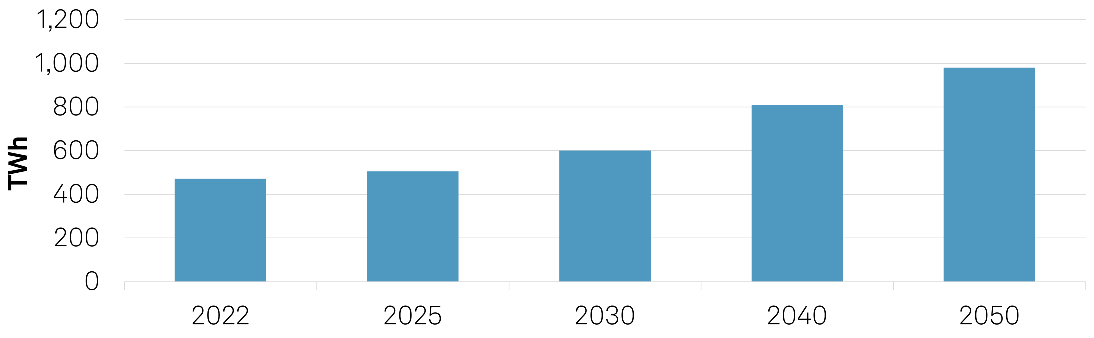
S&P Global
Ratings

Germany | Power Demand and Generation Mix Trends

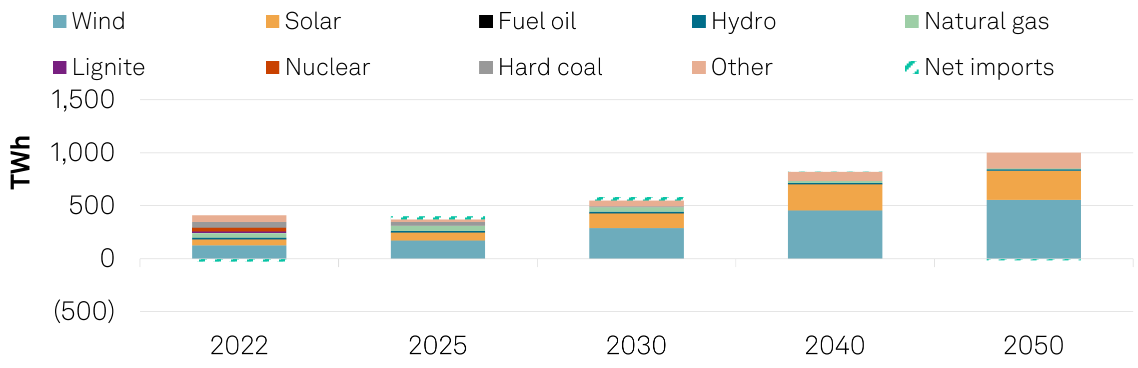
A clear leader in solar and wind rollout



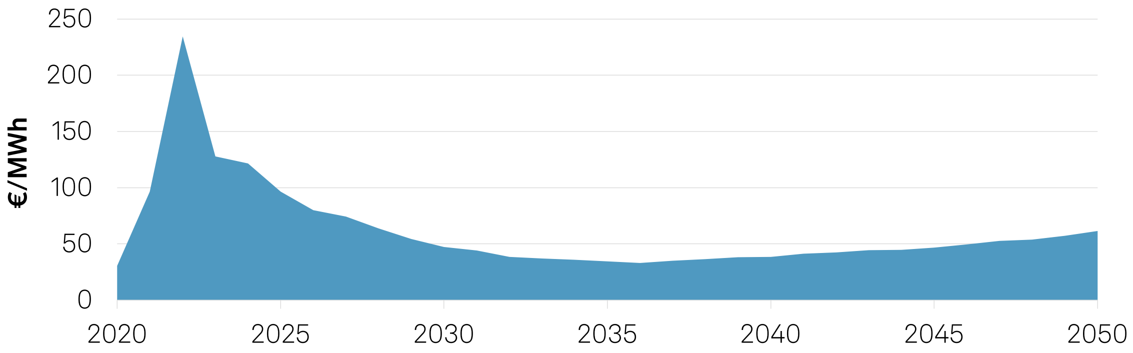
Power demand grows about 100 TWh every five years



Osterpaket 80% renewables objective achieved just after 2030



Power prices to remain above pre-COVID levels until 2025



GW--Gigawatt. MWh--Megawatt hours. TWh--Terrawatt hours. Source: S&P Global Commodity Insights, Global Integrated Gas Demand Model (GIEM), and European LT Gas Report.

S&P Global
Ratings

Germany | Electricity Transmission And Distribution Networks | Strong Regulatory Advantage

Overview of the regulations

Regulator:	Bundesnetzagentur (BNetzA)
Key rated players:	TSOs: Eurogrid (80% ownd by Elia Group), TenneT Holding B.V., TransnetBW (100%* owned by EnBW) (4TSOs in Germany). DSOs: E.ON SE, EnBW Energie Baden-Wuerttemberg AG.
Tariff-setting methodology:	• Return on equity on the regulatory asset base, revenue cap. • Return on equity of 6.91% after trade tax and before corporate tax, nominal value.

Regulatory timeline

- First regulatory period 2009-2013
- Second regulatory period 2014-2018
- Third regulatory period 2019-2023
- Fourth regulatory period 2024-2028

**In May 2023 EnBW announced the signing of the sale of 24.95% to a consortium of investors (with KfW having an option to enter the transaction with another 24.95%). We expect the transaction to be closed by the end of 2023.*

Regulatory advantage overview

Very credit supportive — Less credit supportive

Regulatory stability

- Predictable and transparent framework.
- Strong regulatory track record since 2009.
- Only minor adjustments to the regulatory framework have been made since its introduction, such as the capital cost adjustments (CCA).

Tariff setting

- The tariffs are based on a revenue cap built on operating costs (including depreciation) and return on equity.
- Nominal rates of return on equity, determined in advance of the new regulatory period, apply to all market participants.
- Reference operating costs are based on a so-called photo year (the middle year of the five-year regulatory period).

Financial stability

- The sector is able to recover its costs in full, including a capital return.
- Volume and energy cost risk on revenues are mitigated by the regulatory account, which settles the difference over a three-year period starting two years after the reference year.
- Rates of return on equity are derived from a 10-year average on nominal interest rates, which helps smooth interest rate volatility.

Regulatory independence

- BNetzA is a regulatory agency independent of the government. Its track record shows no cases of political interference
- Further measures are needed to strengthen the independence of the BNetzA following a judgment on Sept. 2, 2021, by the European Court of Justice (ECJ)

Eurogrid GmbH (Elia Group)

Issuer Credit Rating: BBB+/Negative/--

Analyst: Massimo Schiavo

Company description

- Eurogrid, via its 100% owned subsidiary 50Hertz, is one of Germany's four power TSOs.
- Fully regulated power transmission activities and revenues. Eurogrid operates in Eastern Germany and Hamburg.
- Eurogrid/50Hertz had a RAB of about €6.8 billion at year-end 2022.

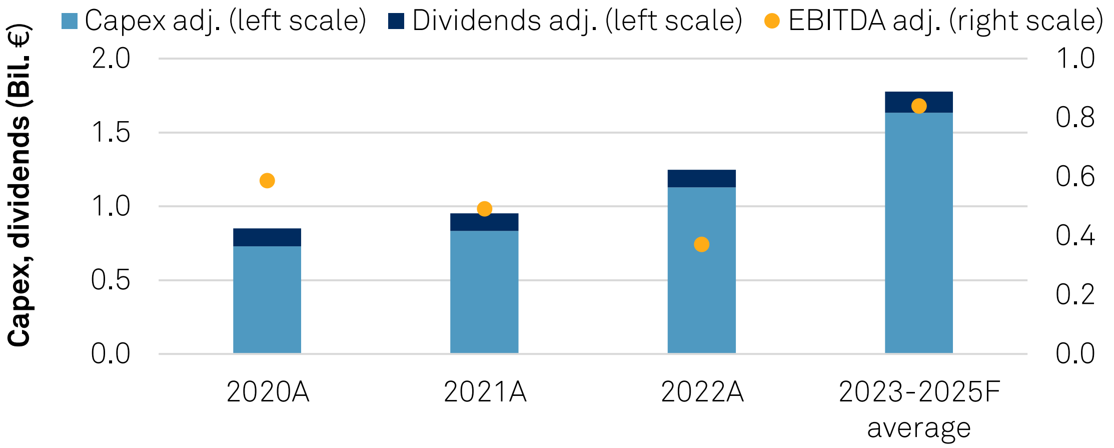
Rating drivers

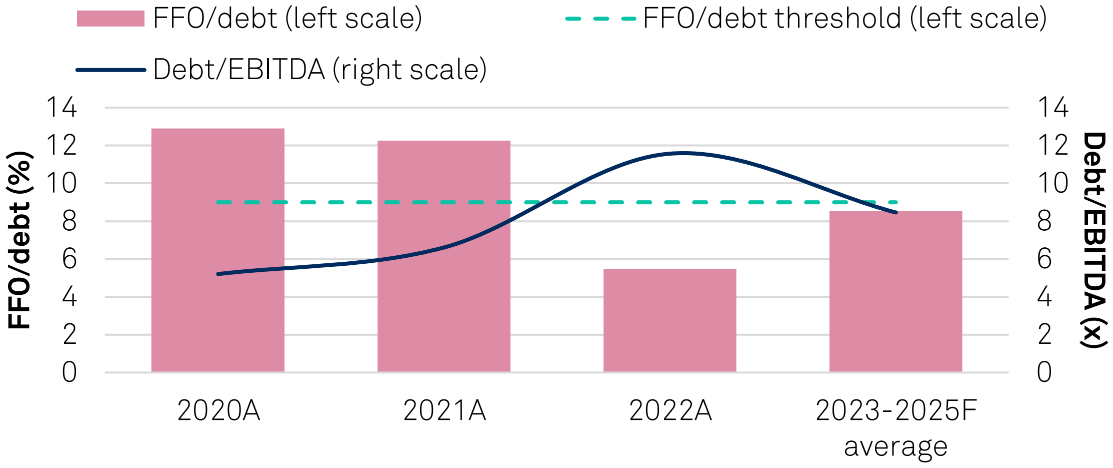
- Eurogrid 's earnings benefit from high visibility from fully regulated power transmission activities in Germany during the current five-year regulatory period, while remuneration for the new 2024-2028 regulatory period largely set.
- High capex over 2022-2026 will erode credit headroom, but S&PGR expects shareholders to remain credit supportive.
- Prudent liquidity planning is crucial given the delay in the recovery of regulated tariffs.
- S&PGR’s rating on Eurogrid isn't constrained by the rating on the wider group.

Outlook: Negative

- Credit metrics deteriorating below 9% over 2023-2025, with no sign of expected improvement.
- A downgrade of Elia Group by more than two notches could lead to a downgrade of Eurogrid, which is 80% owned by Elia Group SA/NV (BBB+/Negative/A-2) and 20% by KfW.

- Outlook revision to stable if FFO to debt remained above 9% over 2023-2025.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: Elia Group And Eurogrid Outlooks Revised To Negative; ETB Outlook Stable; Elia Group, Eurogrid, And ETB Ratings Affirmed, Dec. 22, 2022.

EnBW Energie Baden-Wuerttemberg AG

Issuer Credit Rating: A-/Stable/A-2

Analyst: Gerardo Leal

Company description

- A leading vertically integrated utility in Germany.
- Predominantly active in Germany (more than 85% of EBITDA).
- 45%-50% EBITDA comes from regulated grids and 25%-30% from renewable generation.

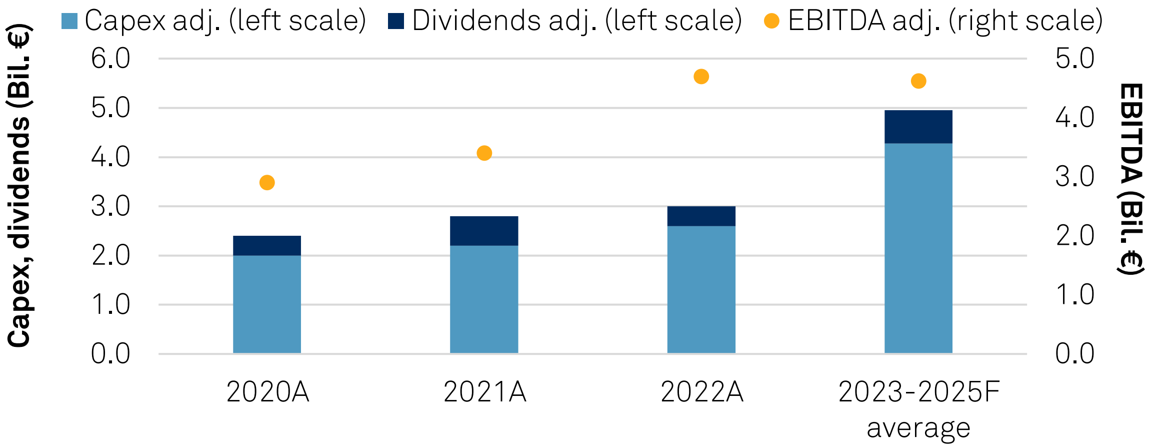
Rating drivers

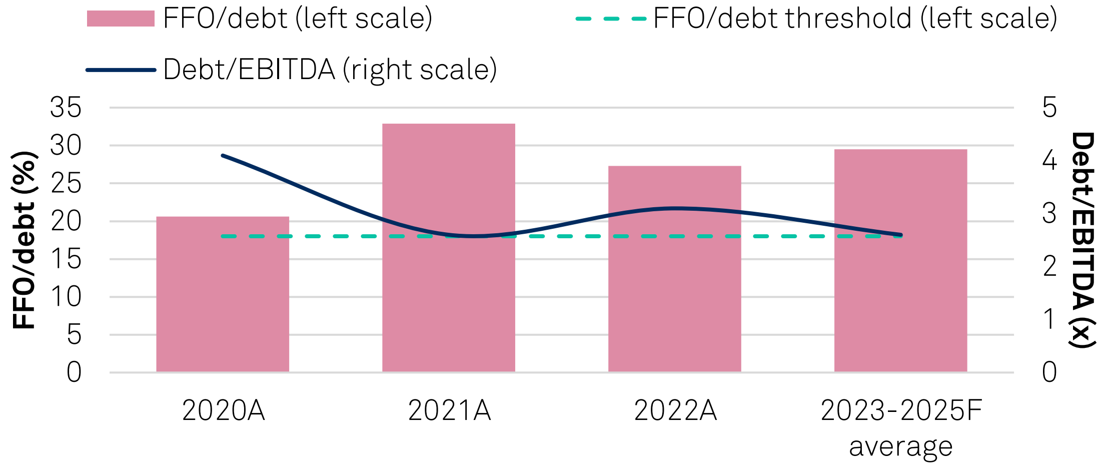
- EnBW will post exceptionally robust credit metrics over the next two to three years, mostly because of locked-in margins at its power generation and trading business.
- Robust cash flows will increase rating headroom over the next two to three years, although rating upside is currently contingent on management committing to metrics consistent with a higher rating.
- We monitor a proportional FFO to debt at 18% at “A-”
- Expansion strategy fueled by recycling funds from selling minority interests, which increases cash flow leakage.

Outlook: Stable

- FFO to debt fell below 18% without a clear path to recovery.
- Severe disruptions at EnBW's power generation fleet, coupled with very high-power prices, generating losses for reprocuring electricity, given a large share of generation hedged for 2023 and 2024.

- An upgrade is unlikely, despite robust expected credit metrics over the next two years, due to accelerating investment related to the energy transition.
- Consistently posting proportional FFO to debt above 20%.
- Increasing the share of EBITDA from regulated or long-term contracted activities.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Note: Adjusted numbers and credit metrics are based on consolidated numbers. 18% downside rating threshold based on pro-forma adjusted FFO to debt. Latest fiscal year ends Dec. 31, 2022. Latest Report: EnBW Outlook Revised To Stable On Improved Credit Metrics Trajectory; 'A-/A-2' Ratings Affirmed, Mar. 30, 2023.

S&P Global Ratings

E.ON SE

Issuer Credit Rating: BBB/Stable/A-2

Analyst: Renata Gottliebova

Company description

- E.ON owns and operates one of Europe's largest distribution networks, including 691,000 km in Germany, 633,000 km in East-Central Europe, and 141,000 km in Sweden.
- Around 75% of estimated EBITDA from regulated activities.
- 2022 electricity RAB of €31 billion (accounting for 85% of total RAB).

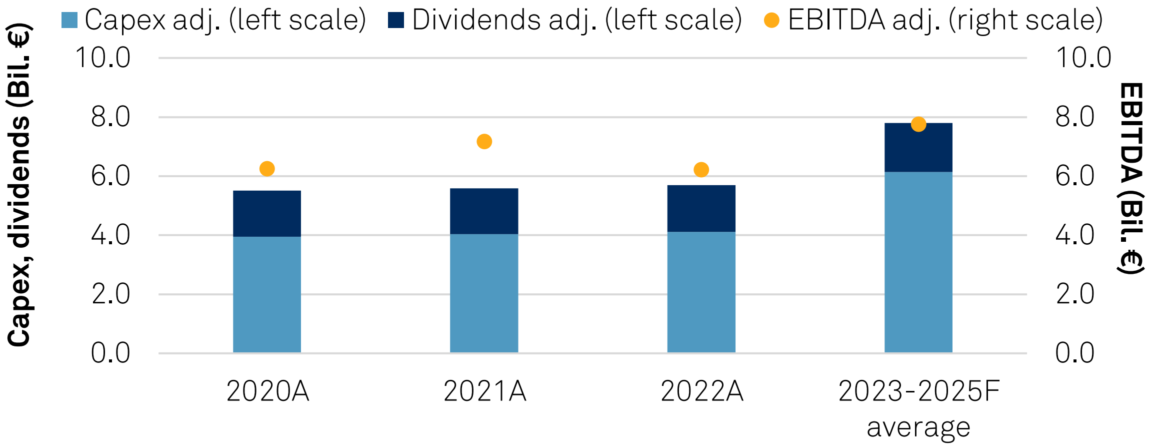
Rating drivers

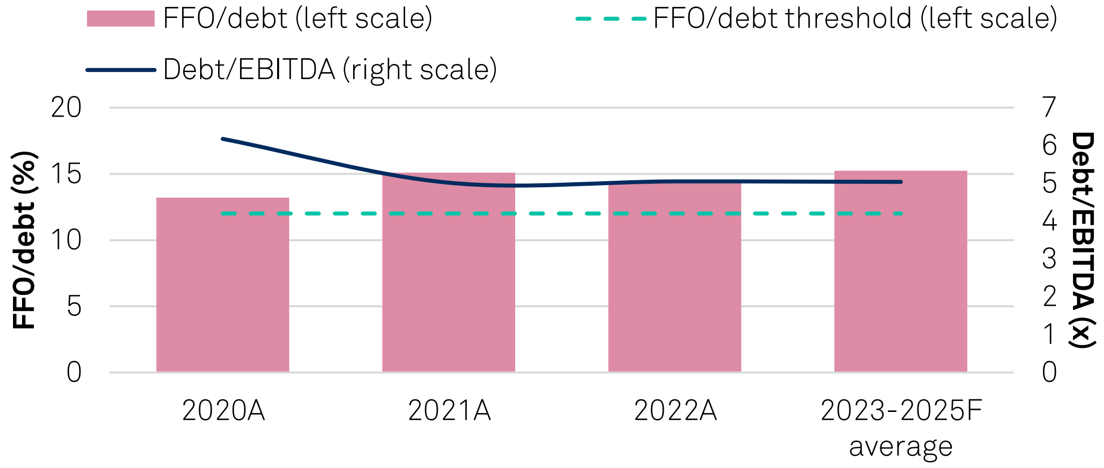
- S&PGR forecasts E.ON will continue reporting FFO to debt above 14% following continuous RAB growth and normalized procurement costs.
- We expect the regulatory parameters for the upcoming fourth period in Germany to be better than initially anticipated, with the outcome due to be revealed in 4Q 2023.
- A heavy investment period lies ahead, leading to negative discretionary cash flow.
- We expect EBITDA growth from business-risk-supportive capex focused on regulated networks and energy infrastructure solutions. Further growth of E.ON's already strong RAB will strengthen the business profile, in a credit supportive regulatory framework.

Outlook: Stable

- Risk of E.ON's financial risk profile weakening, including FFO to debt dropping below 12%.
- Revenues are severely eroded by the economic environment, financial policy loosens, or returns for power networks are worse than expected.

- Strong financial metrics, notably FFO to debt above 14%.
- A supportive regulatory outcome in Germany.
- A sustained contribution from regulated networks of/or above 75% of total EBITDA.
- A supportive financial policy including commitment from the management.



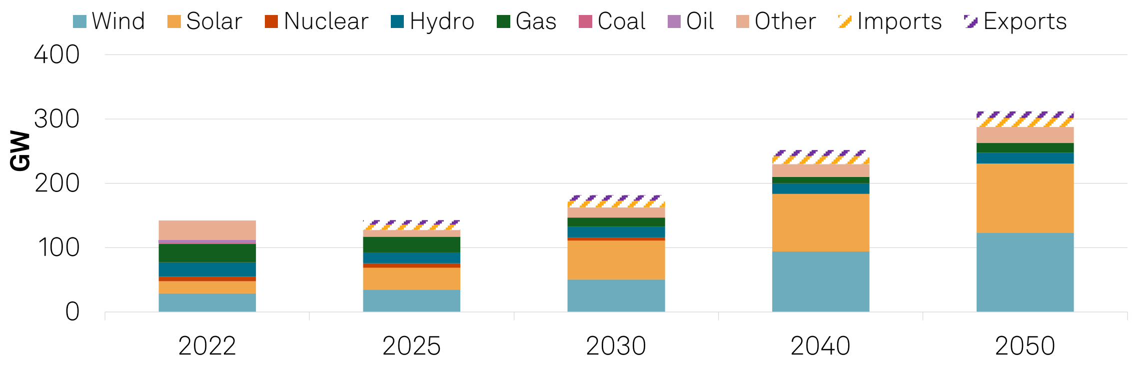


A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: E.ON SE, July 14, 2023.

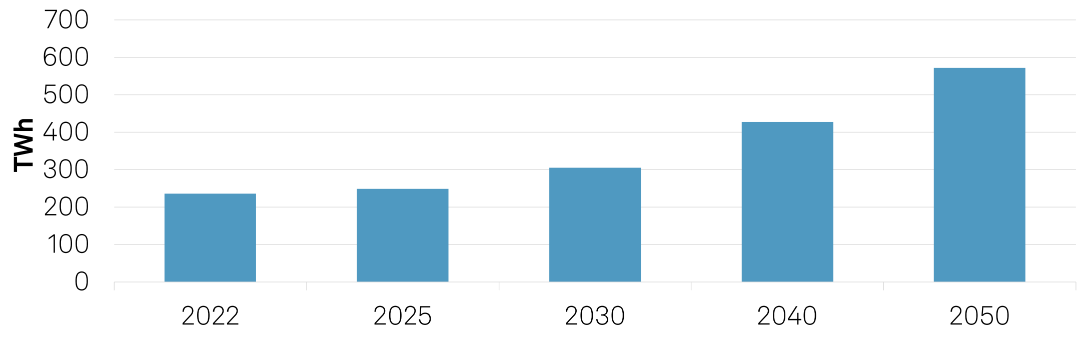
S&P Global
Ratings

Spain | Power Demand and Generation Mix Trends

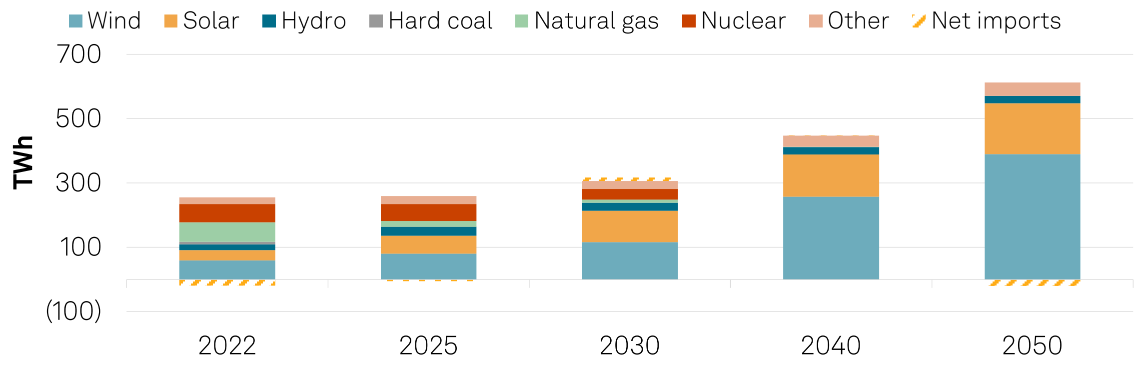
Increasing solar and (mostly onshore) wind



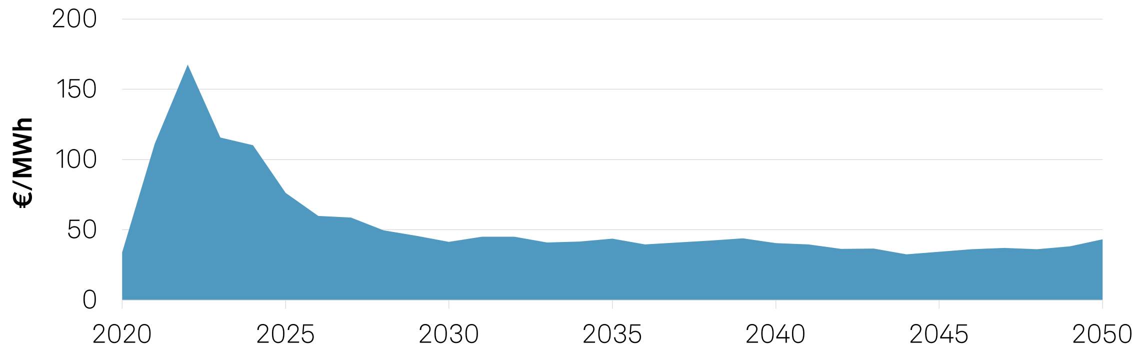
Power demand grows steadily



Uniquely abundant solar resources are over a third of the mix



Power prices to remain high until 2025



GW--Gigawatt. MWh--Megawatt hours. TWh--Terrawatt hours. Source: S&P Global Commodity Insights, Global Integrated Gas Demand Model (GIEM) and European LT Gas Report.

S&P Global Ratings

Spain | Electricity Transmission and Distribution Networks | Strong/Adequate Regulatory Advantage

Overview of the regulations

Regulator:	Comision Nacional de los Mercados y la Competencia (CNMC)
Key rated player:	TSO: Red Electrica Espana, a subsidiary of Redeia Corporacion. DSOs: Endesa, Iberdrola, Naturgy, EDP.
Tariff-setting methodology:	• Rate of return on RAB method (WACC on RAB). • Pre-tax WACC (electricity transmission and distribution): 5.58%.

Regulatory timeline

- Earlier regulatory periods
- Previous regulatory period 2013-2019
- Current regulatory period 2020-2025

Regulatory advantage overview

Very credit supportive — Less credit supportive

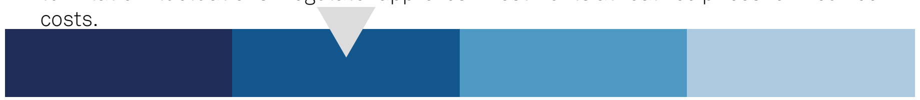
Regulatory stability

- Continuity ensured though the six-year regulatory periods.
- Strong regulatory track record for about 10 years.
- Allow operators to recover operating costs and their investment costs. However, inflation is not recognized until the next regulatory period.

Tariff setting

- Regulator interacts in an open and transparent way with regulated utilities.
- RAB consists of commissioned assets only, creating a lag between capex and investment recovery (with a balancing factor as a partial mitigant to compensate for the time lag).
- There are incentive mechanisms on controllable costs that improve their performance.
- Regulatory formulas are not linked to CPI on an annual basis and operators are exposed to inflation fluctuations. Regulator approves investments at realized prices for incurred costs.

Financial stability



- Adequate recovery of most of the costs with companies that can recover most of their costs, including opex, depreciation, and capital returns.
- Significant protection against volume risk, counterparty risk, and noncontrollable costs.
- Past tariff deficits weigh on our assessment of financial stability, although the system now operates in a balanced way.

Regulatory independence

- Independent from the government in its activities (not in nominations) and subject to parliamentary oversight.
- Short track record of independence from Spain's Ministry of Energy.

Redeia Corporación S.A.

Issuer Credit Rating: A-/Stable/A-2

Analyst: Gerardo Leal

Company description

- Spain's power TSO Red Electrica Espana, a subsidiary of Redeia Corporación S.A. (Redeia).
- Power TSO abroad, including Chile, Peru and Brazil through Red Electrica Internacional, Satelite communications (RESTEL) and leasing of dark fiber and associated infrastructure (REINTEL).

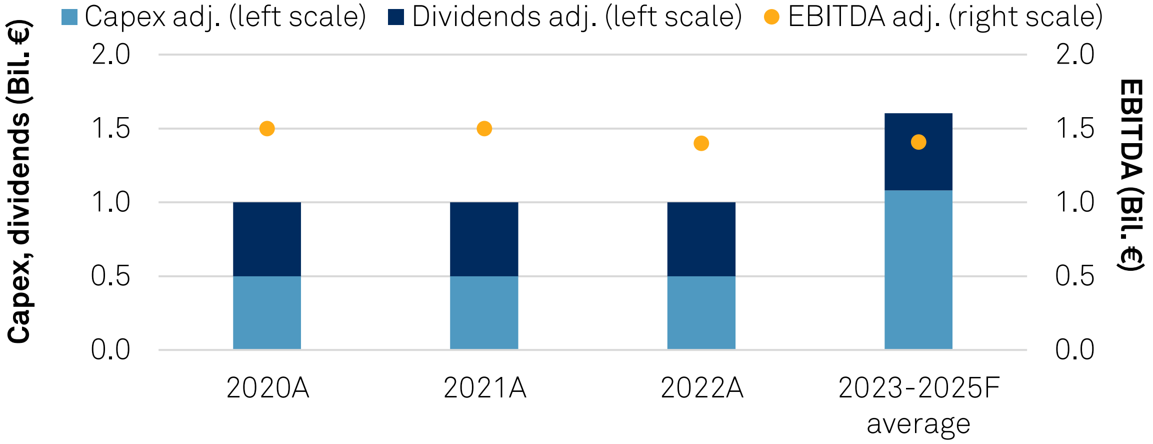
Rating drivers

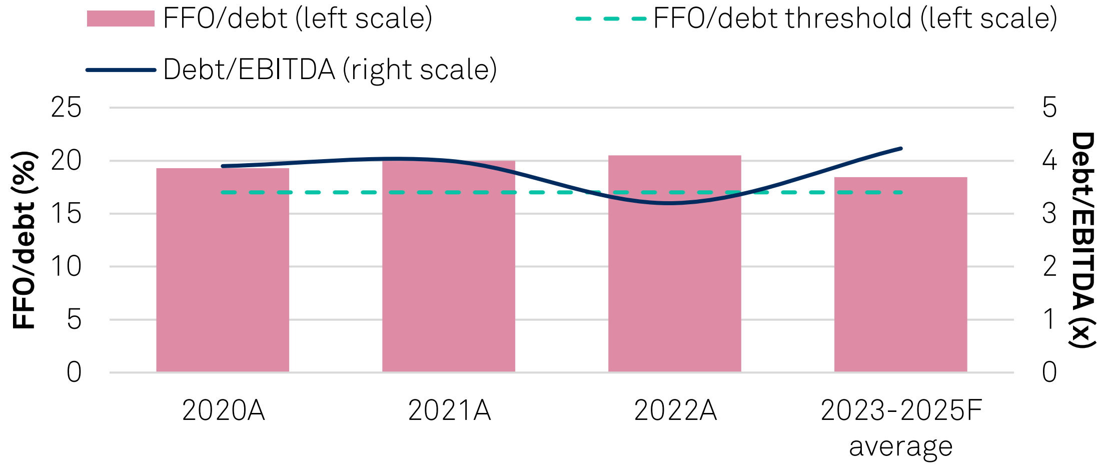
- Credit metrics pressured after 2024 due to the phase out of pre-1998 assets in remuneration (about €250 million).
- The regulatory reset for the period from 2026 will be crucial for financial performance as it accelerates investments related to the energy transition.
- We expect Redeia to maintain a financial policy that supports the current rating, with an FFO to debt above 17%.
- Work-in-progress to be commissioned over the next regulatory period, partly mitigating the drop in regulated EBITDA.
- We expect an EBITDA mix of 80% regulated activities and 20% coming from telecommunications.

Outlook: Stable

- An adverse regulatory reset could pressure Redeia's rating, as credit metrics are already under pressure, absent sufficient remedial measures.
- Increase in non-regulated activities beyond 20% of adjusted EBITDA.

Unlikely in the short term due to a financial policy geared toward achieving an FFO to debt above 15%.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: Red Electrica Corporacion, S.A. 'A-/A-2' Ratings Affirmed; Outlook Stable, June 02, 2023.

EDP Energias de Portugal S.A.

Issuer Credit Rating: BBB/Stable/A-2

Analyst: Renata Gottliebova

Company description

- Vertically integrated utility company operating mainly in Iberia and Brazil.
- One of the largest wind power operators outside of China.
- Three business sectors: Renewables (56%), Client Solutions & Energy Management (11%), and Networks (33%).
- RAB for electricity networks: €7 billion.

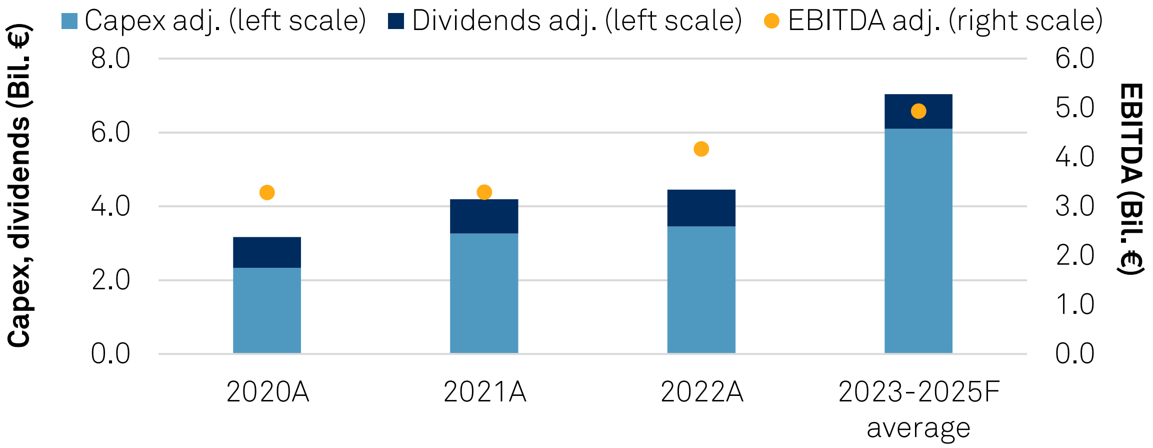
Rating drivers

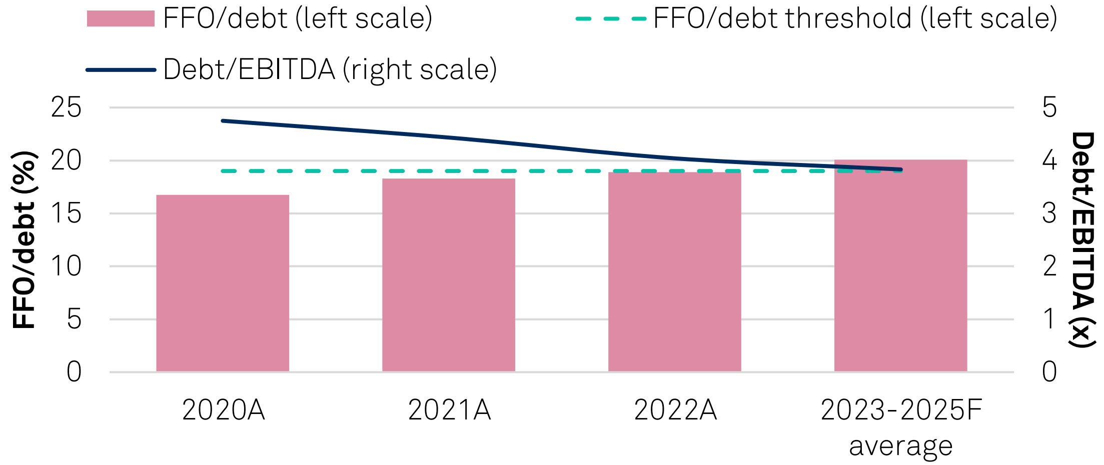
- Balanced investment in regulated activities and renewables.
- Financial policy consistent with a 'BBB' rating.
- Investment plan supporting its business risk profile .
- Global energy transition leader.
- Investment plan execution risks mitigated by experience.

Outlook: Stable

- FFO to debt drops below 19%, debt to EBITDA above 4.0x, without the ability and willingness to reduce leverage.
- Increased presence of minorities.
- Increased country risk in Portugal and Brazil.
- Adverse regulatory or fiscal effects.
- Inability to achieve the €7 billion asset rotation target over 2023-2026.

- Upgrade is unlikely.
- FFO to debt above 25% under its current business risk profile.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: EDP - Energias de Portugal 'BBB/A-2' Ratings Affirmed On Updated Strategic Plan; Outlook Stable, March 31, 2023.

S&P Global Ratings

Endesa S.A.

Issuer Credit Rating: BBB+/Negative/A-2

Analyst: Gerardo Leal

Company description

- Spain-based vertically integrated utility.
- Activities include generation, distribution, and sale of electricity, primarily in Spain and Portugal. The company also sells gas and value-added services. Electricity generation includes hydroelectric, nuclear, thermal, wind, and solar.
- Distribution RAB: €11.4 billion.

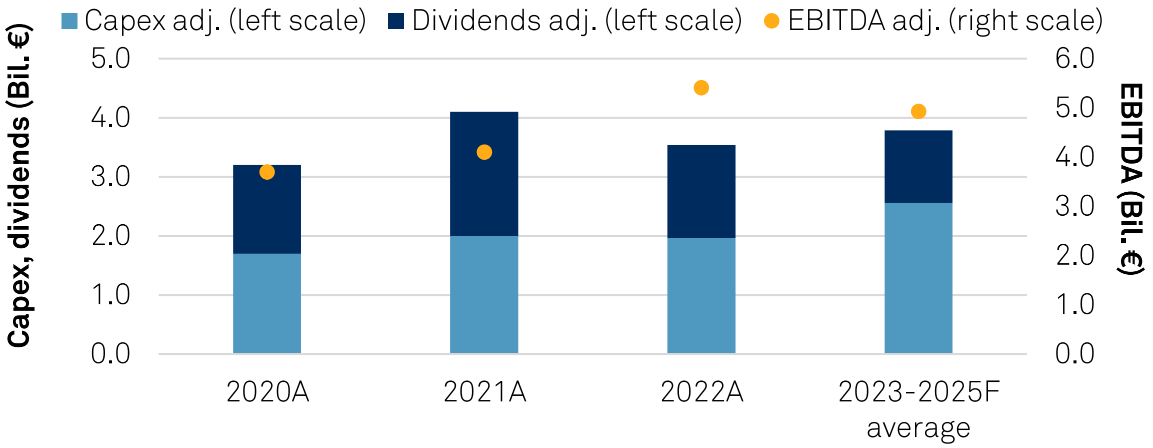
Rating drivers

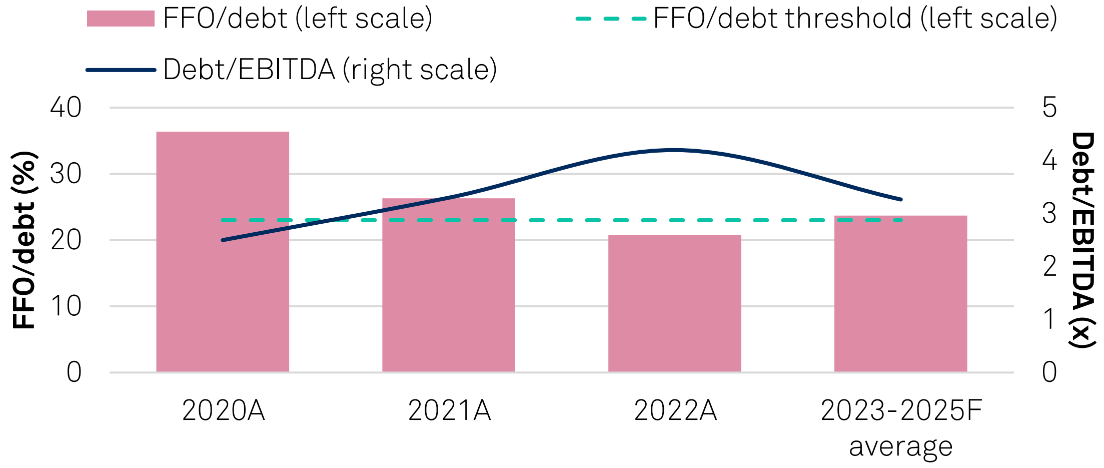
- A core subsidiary of Enel SpA and thus rated at parent level.
- Endesa's 'a-' SACP is above its parent 's due to lower leverage.
- A declining share of regulated activities in the business mix could dilute earnings quality.
- Similar to its parent company, Enel, an adequate liquidity buffer for Endesa is necessary to maintaining the rating.
- Concentration on Spain is a disadvantage relative to diversified peers due to intensifying regulatory intervention related to energy affordability concerns.

Outlook: Negative

- A downgrade of Enel would result in the same rating action on Endesa.

- We would revise the outlook to stable following a similar action on Enel.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: Endesa Outlook Revised To Negative Following Same Action On Parent Enel; 'BBB+/A-2' Ratings Affirmed, Dec. 14, 2022.

S&P Global Ratings

Iberdrola S.A.

Issuer Credit Rating: BBB+/Stable/A-2

Analyst: Gerardo Leal

Company description

- Fully integrated power utility operating networks in Spain, the U.S., the U.K., and Brazil.
- Major global player in renewables (wind and hydro), with a non-renewable power-generation asset base in Spain and Mexico.
- Networks business RAB 2022: €39.2 billion.

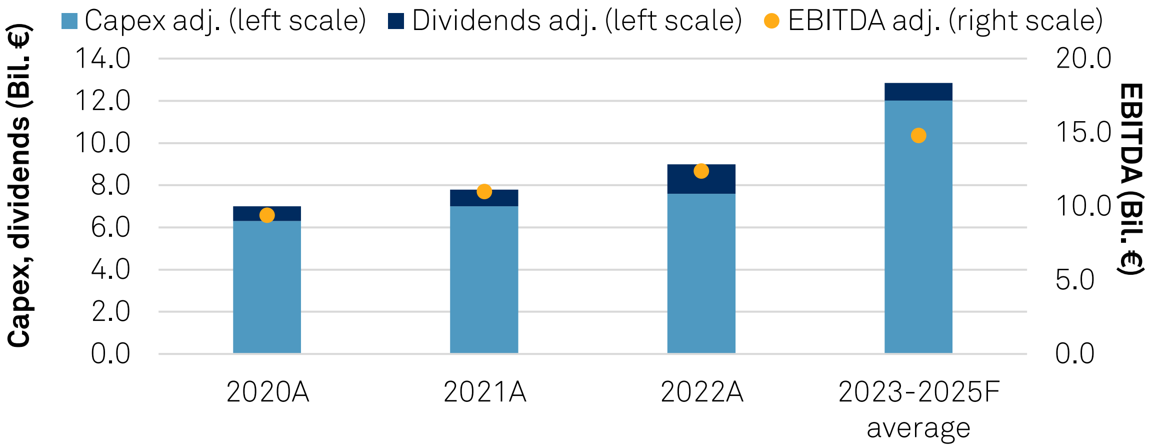
Rating drivers

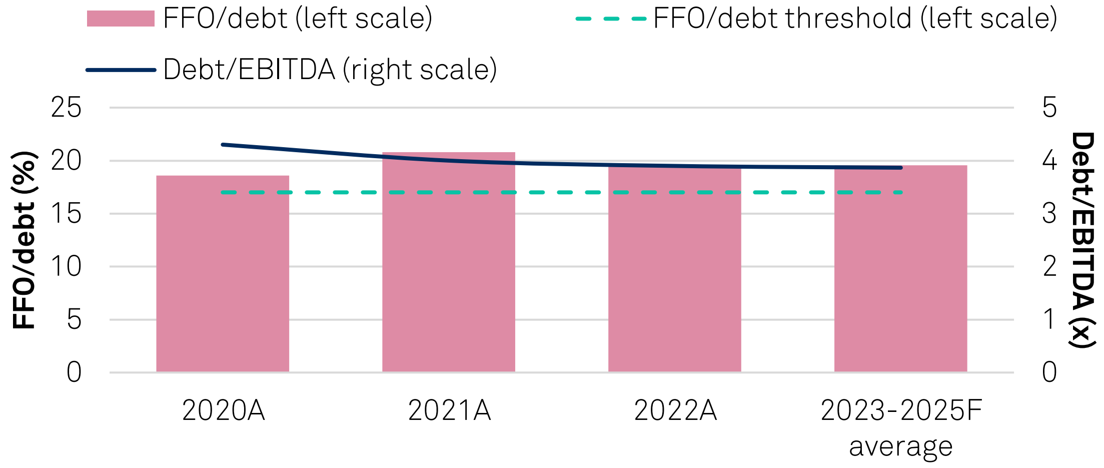
- Balanced business mix, with half of EBITDA from purely regulated electricity networks in supportive jurisdictions.
- Among the leaders in renewable development, with about 30%-35% of EBITDA coming from long-term contracted or subsidized power generated at low marginal cost.
- Sufficient balance sheet headroom to accelerate growth, even with the PNM acquisition.
- If the PNM acquisition does not go through, the regulated share of EBITDA is likely to decline, as renewable output increases, and alternative regulated investments are hard to find.

Outlook: Stable

- FFO to debt below 17% without signs of recovery.
- Harsher regulatory environment in key markets.
- Abrupt acceleration in debt-financed growth.

- FFO to debt consistently above 20%.
- Supportive financial policy.
- Lower country risk.
- Significantly larger scale by 2025.
- Improved business risk profile.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: Iberdrola S.A., Oct. 11, 2023.

S&P Global Ratings

Naturgy Energy Group S.A.

Issuer Credit Rating: BBB/Stable/A-2

Analyst: Gerardo Leal

Company description

- Vertically integrated utility with leading positions in gas and power value chains in Spain and parts of Latin America.
- Four segments: Networks, energy management, renewables and new business, and energy supply.

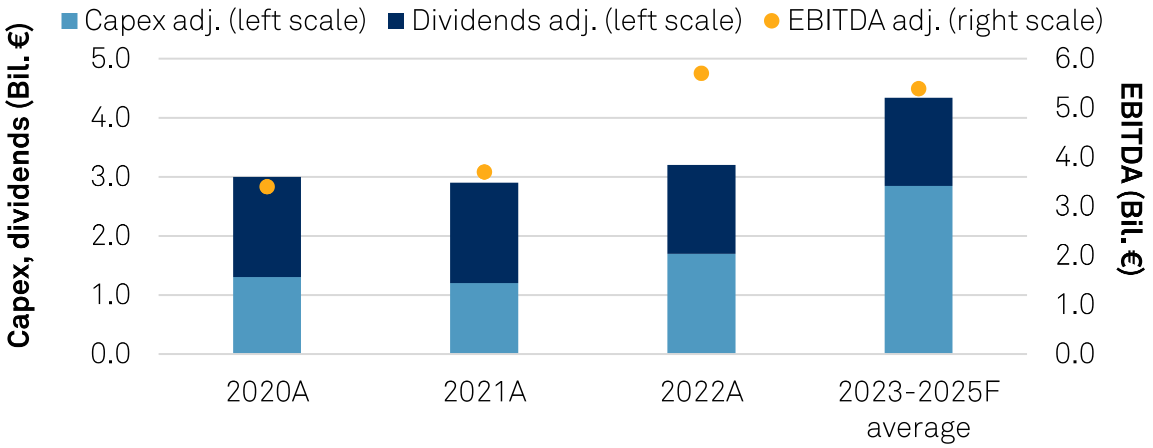
Rating drivers

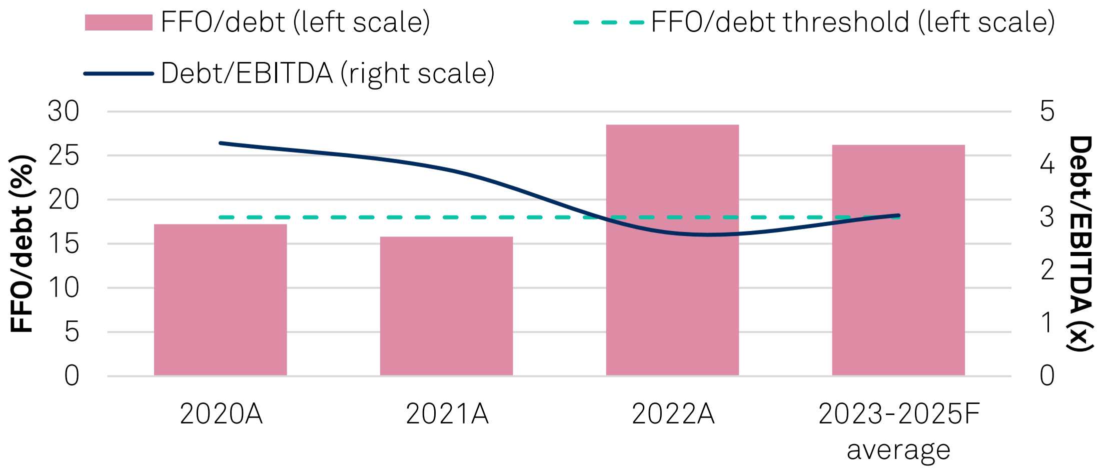
- High share (over 50% of EBITDA for 2023) of low-risk regulated gas and power distribution activities provide a stable and predictable cash flow stream.
- Unclear strategic direction raises questions on long-term scope and competitive position.
- Lag versus peers in the energy transition could compromise its competitive position over the medium- to long-term.
- Better performance at the supply and international LNG business supports our expectation of strong financial results through 2024 and should provide sufficient financial headroom to bridge the period until strategy is clarified.
- Integrated position in electricity and gas in Spain provides a competitive advantage against pure power generators.
- Aggressive shareholder remuneration coupled with historically reduced capital expenditure.

Outlook: Stable

- Losing competitiveness due to above-average carbon intensity.
- An FFO to debt below 18%.

- Clarity on strategic direction.
- Demonstrating it can deliver consistent organic growth that accelerates its transformation to a more sustainable business mix.
- A financial policy supportive of a higher rating.



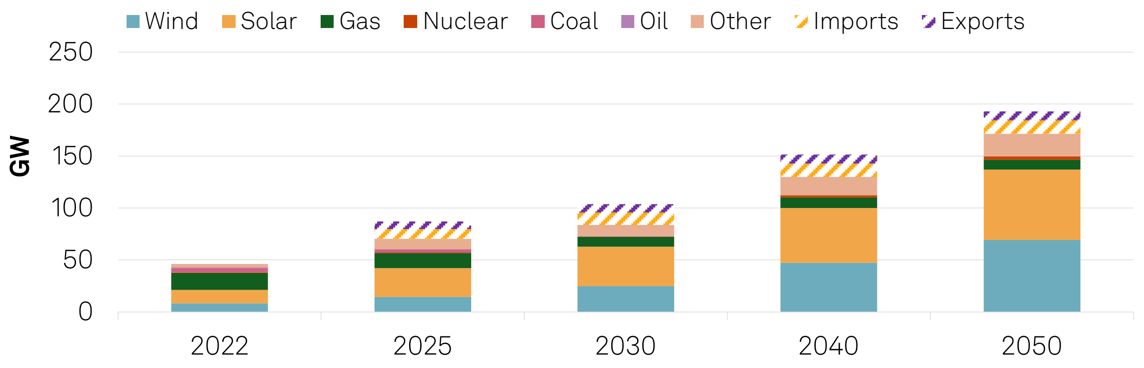


A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: Naturgy Energy Group S.A., Aug. 07, 2023.

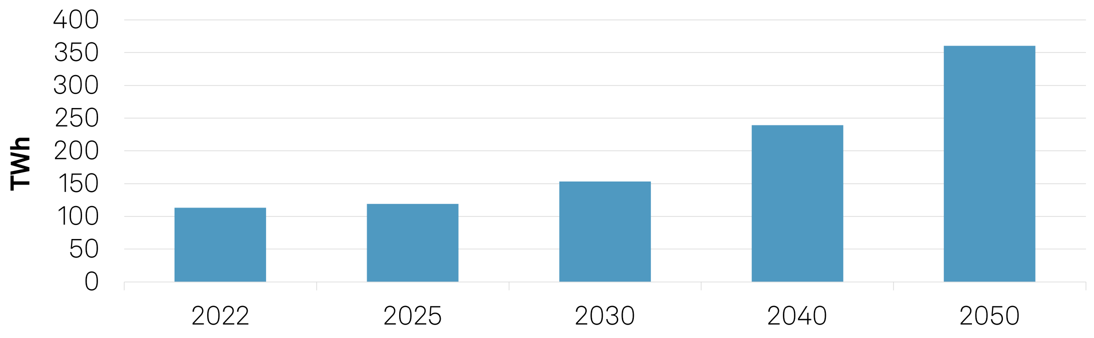
S&P Global Ratings

Netherlands | Power Demand and Generation Mix Trends

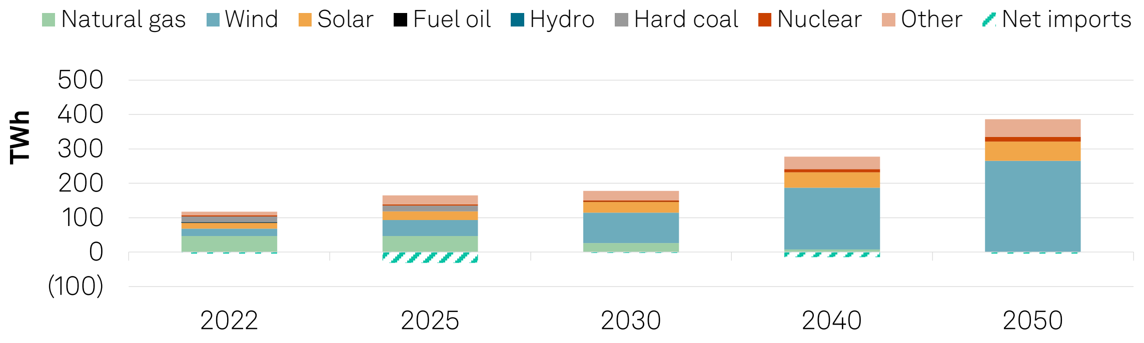
Solar capacity continues to expand at an impressive rate



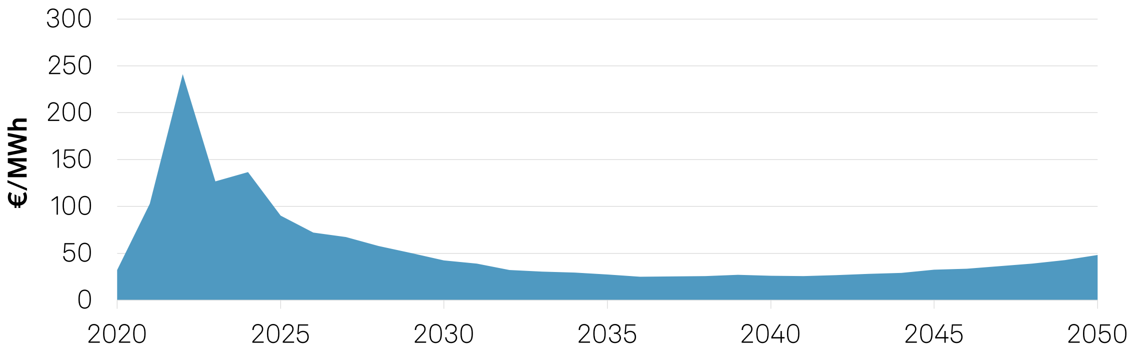
Power demand will increase robustly



Solar/wind contribution by 2030 will match Germany and Spain



Power prices to remain above pre-COVID levels until 2025



GW--Gigawatt. MWh--Megawatt hours. TWh--Terrawatt hours. Source: S&P Global Commodity Insights, Global Integrated Gas Demand Model (GIEM) and European LT Gas Report.

Netherlands | Electricity Transmission Networks | Strong Regulatory Advantage

Overview of the regulation

Regulator:	Authority for Consumers and Markets (ACM)
Key rated player:	TSO: TenneT Holding B.V.
Tariff-setting methodology:	• Real-plus WACC (real WACC plus 50% of inflation) on RAB. • WACC: set at 2.0% (pre-tax) for 2022. Annual recalculation of WACC based on actual risk-free rates.

Regulatory timeline

- Earlier regulatory periods 2002-2016
- Previous regulatory period 2017-2021
- Current regulatory period 2022-2026

Regulatory advantage overview

Very credit supportive | Less credit supportive

Regulatory stability

- Long and solid track record of predictable regulation for more than 20 years.
- Continuity is ensured through five-year regulatory periods.

Tariff setting

- Tariff-setting procedure is transparent, and formula based.
- Appeals over the past 10 years show track-record of regulatory decisions being challenged.
- Real-plus-WACC remuneration system (less favourable than other European frameworks).
- Interest components of cost of debt and cost of equity of WACC recalculated yearly (then applied in the formula with a two-year lag).

Financial stability

- Strong, based on full and timely cost recovery, despite significant investments needed in the next decade.
- No exposure to volume risk: allowed revenue is independent from the volume they sell. Correction mechanism at the year t+2.

Regulatory independence

- Strong, fully independent from any other public or private interests.

Netherlands | Electricity Distribution Networks | Strong Regulatory Advantage

Overview of the regulation

Regulator:	Authority for Consumers and Markets (ACM)
Key rated players:	DSOs: Alliander, Enexis, Stedin (together more than 90% market share).
Tariff-setting methodology:	• Real-plus WACC (real WACC plus 50% of inflation) on RAB. • Set at 2.0% (pre-tax) for 2022.

Regulatory timeline

- Earlier regulatory periods 2002-2016
- Previous regulatory period 2017-2021
- Current regulatory period 2022-2026

Regulatory advantage overview

Very credit supportive — Less credit supportive

Regulatory stability

- Long and solid track record of predictable regulation for more than 20 years.
- Continuity is ensured through five-year regulatory periods.

Tariff setting

- Electricity DSOs receive additional income for output fed from decentralized power generation, including solar and wind.
- Real-plus-WACC remuneration system (less favourable than other European frameworks).
- Interest components of cost of debt and cost of equity of WACC recalculated yearly (then applied in the formula with a two-year lag).

Financial stability

- Limited exposure to volume risk: tariffs are set by capacity volume at the connection point and not by the effective volume of transported energy.

Regulatory independence

- Strong, fully independent from any other public or private interests.

TenneT Holding B.V.

Issuer Credit Rating: A-/Stable/A-2

Analyst: Massimo Schiavo

Company description

- Power TSO operating in Germany (70% of EBITDA) and the Netherlands (30%).
- More than 95% of EBITDA comes from regulated TSO operations.
- Wholly owned by the Dutch Ministry of Finance.
- Asset book value totalled about €39 billion in 2022.

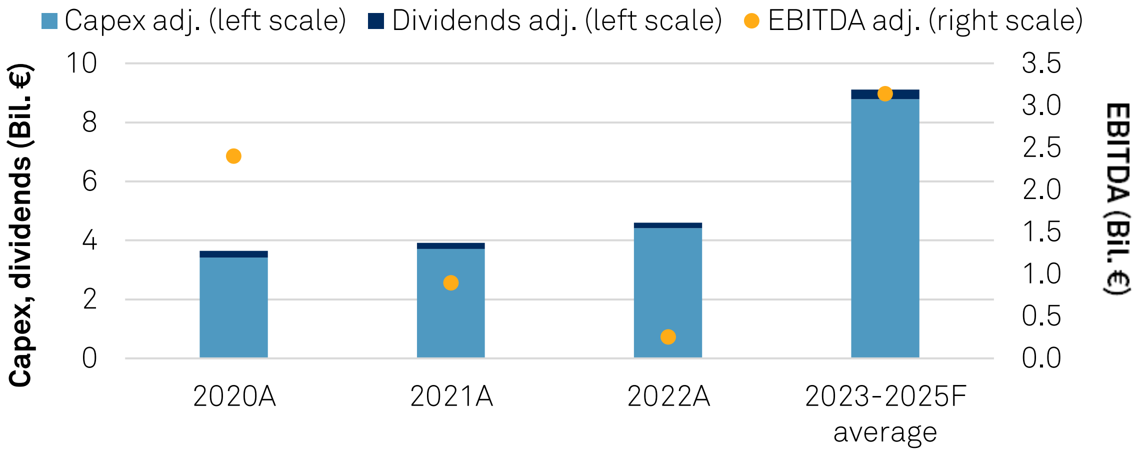
Rating drivers

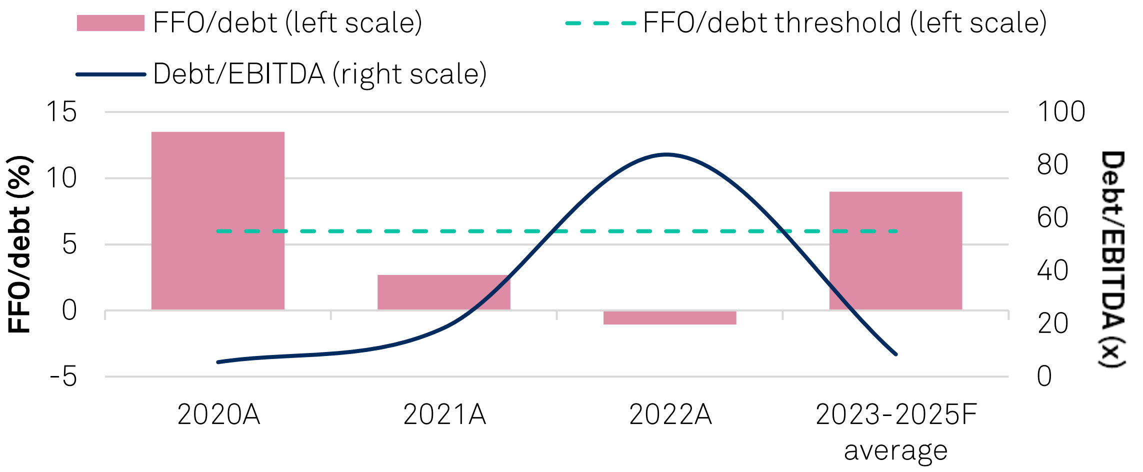
- Costs for ancillary services incurred in year T are fully recovered during T+2 years in the Netherlands, and between T+3 and T+5 in Germany.
- FFO to debt based on underlying numbers expected at above 6% on average.
- We factor in extraordinary state support with two notches above 'bbb' SACP.
- Regulatory visibility in the current 2022-2026 regulatory period for the Netherlands, while parameters are already set for the new 2024-2028 regulatory period in Germany.
- Sale of German operations expected to be neutral to positive for the rating.

Outlook: Stable

- FFO to debt below 6%.
- Unfavourable changes in German or Dutch regulatory frameworks.
- Capex increase without offsetting measures.
- Unexpected delays or cost overruns on existing projects not covered in a timely manner by regulated tariffs.

- Stronger likelihood of extraordinary support from the Dutch government.
- FFO to debt of more than 10%.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: Tear Sheet: TenneT Holding B.V., July 6, 2023.

S&P Global Ratings

Alliander N.V.

Issuer Credit Rating: A+/Watch Pos/A-1

Analyst: Federico Loreti

Company description

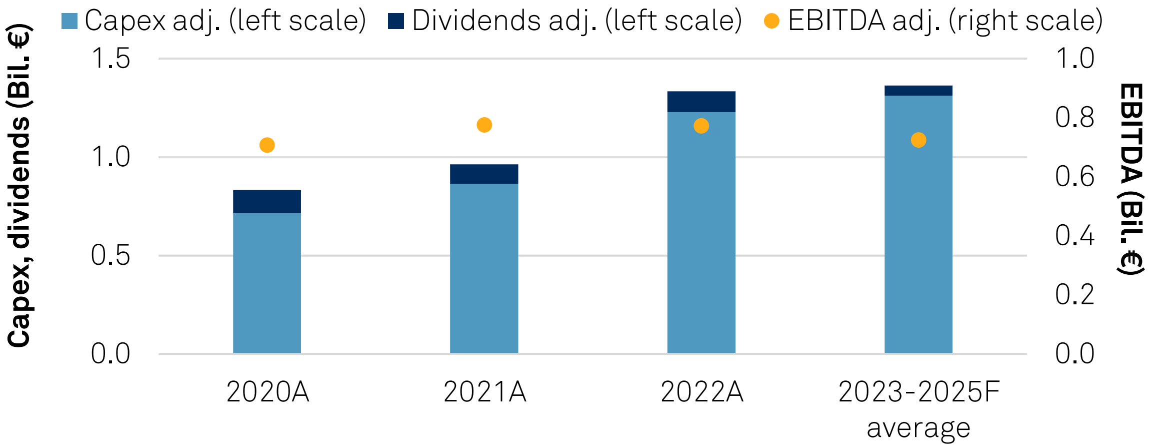
- Largest regulated electricity and gas distribution operator in the Netherlands, with more than 5.7 million connection points.
- Regulated activities represent about 90% of EBITDA.
- Fully owned by 74 Dutch provinces and municipalities, including Province of Gelderland (44.7%), Friesland (12.7%), Noord-Holland (9.2%), and the City of Amsterdam (9.2%).

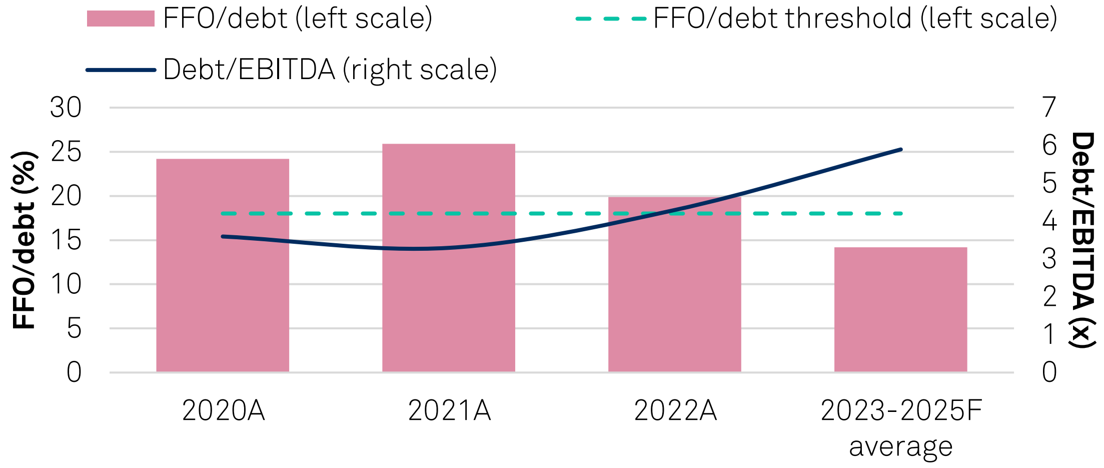
Rating drivers

- Trade and Industry Appeals Tribunal (CBb) ruling instructed regulator ACM to amend the current regulatory period decision on allowed remuneration.
- Upcoming sale of unregulated subsidiary Kenter will generate more proceeds than anticipated.
- Substantial improvement in credit ratios linked to upcoming regulatory decision is very likely, leading to CreditWatch placement.
- Moderate likelihood of extraordinary support from central government, given pivotal role for the energy transition.

CreditWatch Positive

- Rating upside limited to one notch.
- More clarity on final regulatory decision.
- Update on business plan and financial policy.
- FFO to debt well above 18% .





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends Dec. 31, 2022. Latest Report: Alliander N.V. Placed On CreditWatch Positive On Upcoming Regulatory Decision, Oct. 13, 2023.

Enexis Holding N.V.

Issuer Credit Rating: A+/Positive/A-1

Analyst: Pauline Pasquier

Company description

- Gas and electricity distribution network operator in the Netherlands.
- In 2022, Enexis generated revenue of €1.7 billion and EBITDA of €745 million.
- Enexis is owned by the Provinces of Noord-Brabant (30.8%), Overijssel (19.7%), Limburg (16.1%), and Groningen and Drenthe (9%), and the rest is owned by 86 small to medium-sized communities that populate approximately 25% of the total Dutch population.

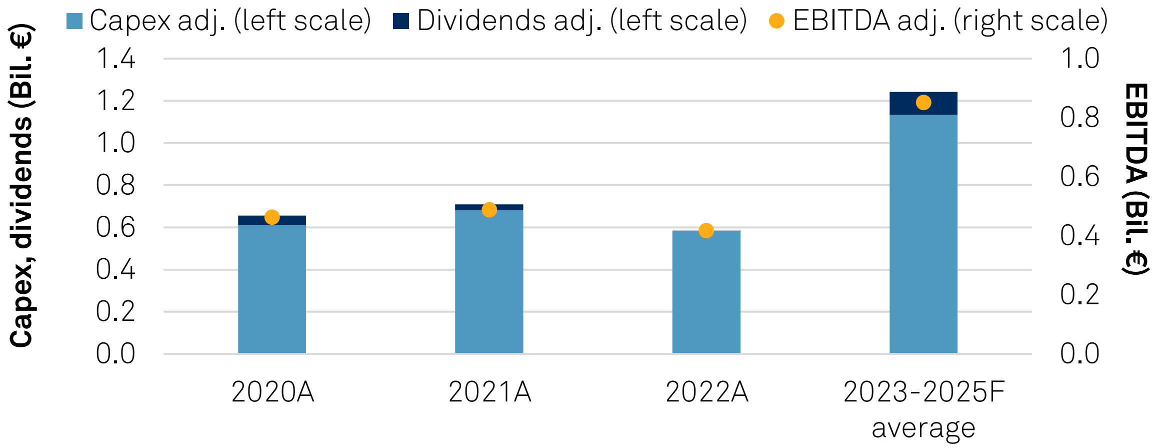
Rating drivers

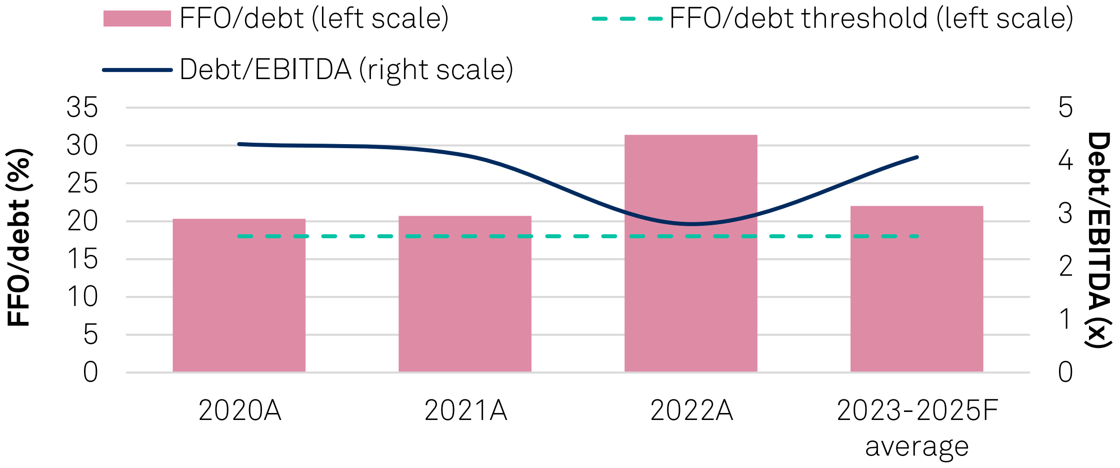
- Very supportive regulatory framework in the Netherlands supporting cash flow predictability and adequate return on investments.
- Our base case factors in recovery of energy costs for grid losses as well as protection from cost inflation and rising cost of debt.
- Intensive capex program to respond to national energy transition needs with capex increases that continued to accelerate from 2022, partially inflated by increasing costs.
- Supportive financial policy and prudent risk management.
- Moderate likelihood of extraordinary support from central government, given pivotal role for the energy transition.

Outlook: Positive

- Adjusted FFO to debt fell below 18% notably from an unexpected debt increase in debt on higher dividends.
- Decrease in operating margin or unexpected price volatility without offset.
- Any adverse regulatory decisions could add downside pressure to the rating.

- FFO to debt above 18%.
- No deterioration in business risk profile with a very supportive regulatory framework maintained.
- Increase in return on capital allowed.
- Public commitment for a higher rating level.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: Enexis Holding N.V., Jan. 03, 2023.

Stedin Holding N.V.

Issuer Credit Rating: A-/Stable/A-2

Analyst: Pauline Pasquier

Company description

- Stedin Group is the third-largest electricity and gas grid operator in the Netherlands. It operates in South Holland, Utrecht, and Zeeland, and in parts of North Holland and Friesland.
- In 2022, Stedin generated revenue of €1.3 billion and EBITDA of €437 million.
- Stedin is owned by 44 Dutch municipalities, the largest of which is the City of Rotterdam, followed by The Hague. By law, Stedin must be owned by a public entity.

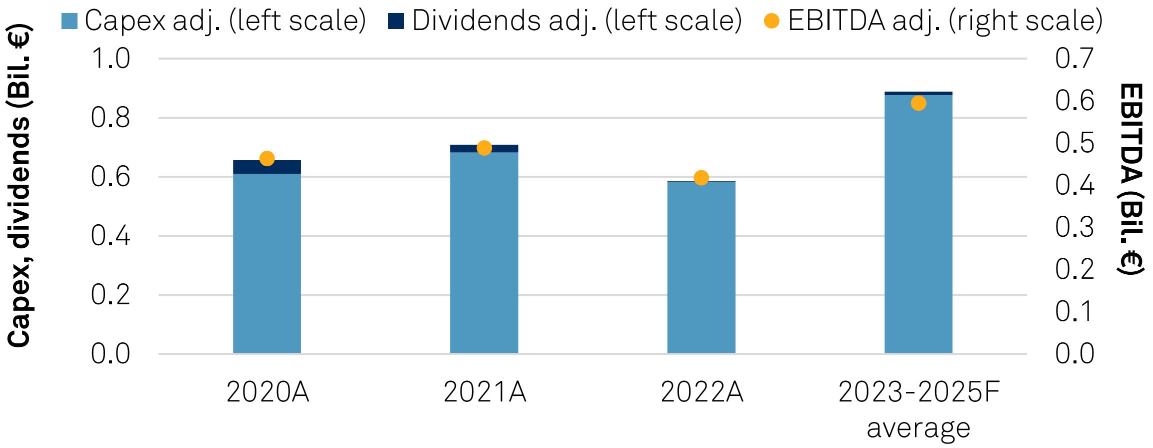
Rating drivers

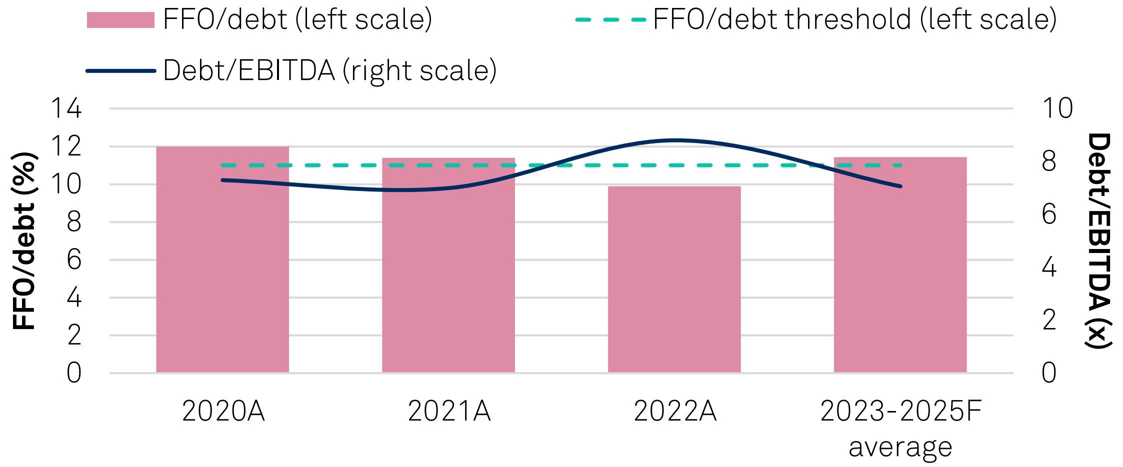
- Very supportive regulatory framework in the Netherlands supporting cash flow predictability and adequate return on investments.
- Credit metrics in 2022-2024 hindered by higher-than-expected energy purchase costs to cover above-peer network losses (even if partly recovered by the regulated remuneration).
- Intensive capex on energy transition.
- €500 million capital injection from the Dutch state in 2023.
- Moderate likelihood of extraordinary support from central government, given Stedin's role in the energy transition.

Outlook: Stable

- Adjusted FFO to debt to fell below 9%.
- Adverse regulatory decisions.
- Lack of compensation for energy purchase costs to cover for losses.
- Weaker likelihood of support from state.
- No timely and sufficient implementation of remedial measures from shareholders.

An upgrade is unlikely but would reflect.
- Sustained FFO to debt above 11%.
- Supportive financial policy with clear commitment to a higher rating level.





A--Actual. F--Forecast. FFO--Funds from operations. Capex--Capital expenditure. Latest fiscal year ends March 31, 2021. Latest Report: Dutch DSO Stedin Holding Affirmed At 'A-/A-2' On Regulatory Visibility And Financial Policy; Outlook Stable, Nov. 08, 2021.

Main Analytical Contacts

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