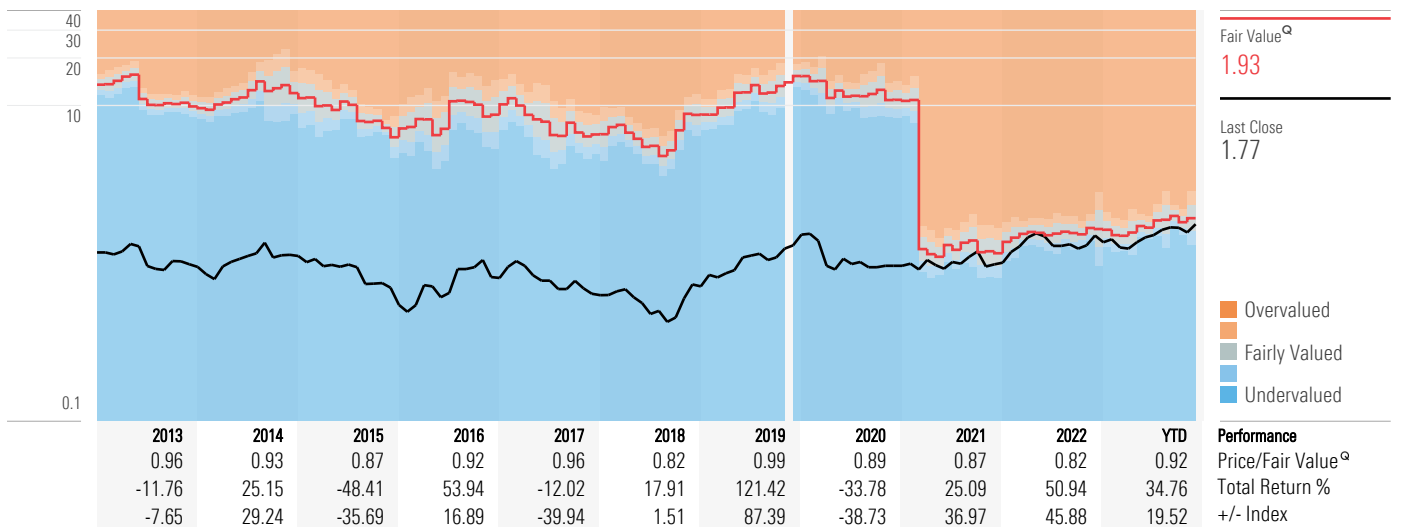


Cia Paranaense De Energia Copel Class B XCOP ★★★ 29 Nov 2023, 23:39 UTC

Economic Moat ^Q	Uncertainty ^Q	Price/Fair Value ^Q	ESG Risk Rating Assessment ¹	Trailing Dividend Yield %	Market Cap	Investment Style	Sector	Industry
None	Very High	0.9	1 Nov 2023 05:00, UTC	7.28	5.0897 Bil	Mid Core	Utilities	Utilities - Diversified



As of 29 Nov 2023 | Index: Morningstar Brazil GR BRL. Fair Value data as of 29 Nov 2023, 23:39 UTC.

¹The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating. Lee Davidson, Chief Analytics Officer for Morningstar, Inc, oversees the methodology that supports Quantitative Fair Value Estimates and Quantitative Star Ratings. Mr. Davidson is guided by the Morningstar, Inc. Code of Ethics in carrying out his responsibilities. For information regarding Conflicts of Interests, visit <http://global.morningstar.com/equitydisclosures>.

Key Metrics as of 24 Nov 2023

Metrics	Value	Percentile in Sector
Earnings Yield (%)	7.8	66.0
Sales Yield (%)	80.8	64.0
Book Value Yield (%)	83.3	64.0
Return on Assets (%)*	4.0	69.0
Revenue(Bil)*	4.6	71.0
Market Value (Bil)	5.6	71.0
Enterprise Value (Bil)	7.6	65.0
EVMV Ratio	1.4	41.0
Volatility TTM (%)	19.7	35.0
Drawdown TTM (%)	15.6	23.0
Volume (Mil)	15.2	94.0

*30 Sep 2023

Business Description

Cia Paranaense De Energia Copel is primarily involved in the production of power in the Brazilian state of Parana. Specifically, the company's operating segments include power generation and transmission, gas, power distribution, power sale, and Holding and Services. Most of the company's revenue is derived from the sale of electricity. It generates electricity through renewable energy sources such as hydroelectric, wind plants, and thermo-electric plants. The company was designed to allow Parana to manage the distribution of power and related services, so the state is a major shareholder.

Valuation ^Q as of 30 Nov 2023

Morningstar maintains a 3-star quantitative star rating for Cia Paranaense De Energia, derived from the firm's valuation and uncertainty scores. The company's shares last closed at 1.77, below our quantitative fair value estimate of 1.93. These shares have traded between a 20.18% and 7.91% discount to their fair value estimate over the past year. In Morningstar's equity coverage universe for this methodology, the company's valuation rating lands at the 86th percentile; in the utilities sector, the firm's score lies at the 79th percentile (meaning the shares are more undervalued than 79% of stocks in the sector). Furthermore, Cia Paranaense De Energia maintains a quantitative valuation uncertainty rating of Very High.

The company has held this star rating since the previous rating of 4, which was last assigned on 11/24/2023. The uncertainty rating for Cia Paranaense De Energia has remained Very High since the previous rating of High, which was last assigned on 11/28/2023.

The key factors behind these ratings are the com-

pany's earnings yield and return on assets. The earnings yield is 7.71%, and its maximum return on assets is 6.92. The earnings yield falls at the 66th percentile in the utilities sector while the return on assets is at the 70th percentile. Over the past year, the company's earnings yield has been between 4.13% and 8.87%; its return on assets has ranged between 2.08 and 6.92.

Economic Moat ^Q as of 29 Nov 2023

With a Morningstar quantitative moat rating of None, the quantitative moat score for Cia Paranaense De Energia falls at the 37th percentile in the utilities sector and at the 39th in the equity coverage universe. The company has maintained its None quantitative moat rating for the last year.

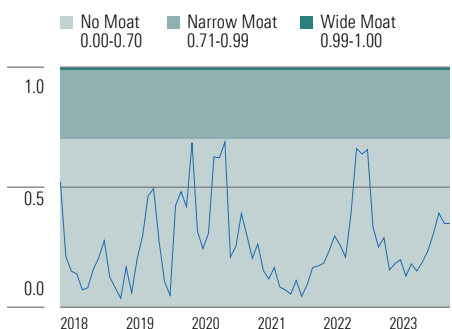
We also assign a Moderate quantitative financial health rating to Cia Paranaense De Energia. The company's raw score on this metric, termed Distance to Default, ranks at the 56th percentile overall and 69th in the utilities sector. Furthermore, this financial health rating has stayed Moderate over the last year.

Supporting these ratings are the company's book value yield and enterprise value-to-market value ratio. The book value yield of 82.39%, ranks at the 62nd percentile in the covered equity universe and at the 64th percentile among its peers. Meanwhile, its enterprise value-to-market value ratio of 1.36, falls at the 71st percentile in the universe and the 42nd percentile in the utilities sector.

Fundamentals as of 29 Nov 2023


Cia Paranaense De Energia maintains earnings per share of 0.71. The company further earns a return on invested capital of 5.86%. The shares offer a dividend yield of 8.21%. These values are calculated over a trailing 12-month period.

Economic Moat ^Q History as of 29 Nov 2023



Cia Paranaense De Energia Copel Class B XCOP ★★★

Q 29 Nov 2023, 23:39 UTC

Economic Moat ^Q	Uncertainty ^Q	Price/Fair Value ^Q	ESG Risk Rating Assessment ¹	Trailing Dividend Yield %	Market Cap	Investment Style	Sector	Industry
None	Very High	0.9	 1 Nov 2023 05:00, UTC	7.28	5.0897 Bil	Mid Core	Utilities	Utilities - Diversified

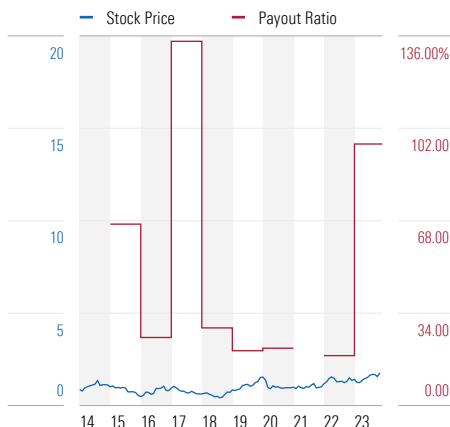
Earnings as of 24 Nov 2023

Earnings	%	Percentile in Sector
Dividend Yield*	8.2	88.0
Payout Ratio*	53.5	45.0
Price to Earnings	12.9	44.0
Price to Cash Flow	12.0	52.0
ROIC**	5.9	58.0

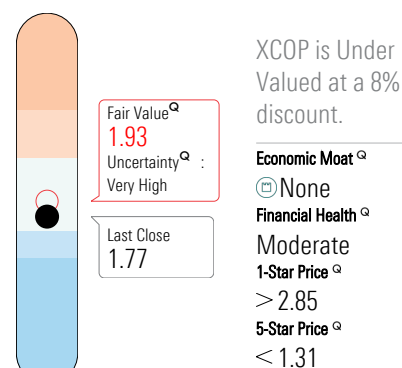
*31 Oct 2023

**30 Sep 2023

Dividends as of 29 Nov 2023



Valuation ^Q as of 29 Nov 2023



XCOP is Under Valued at a 8% discount.

Economic Moat ^Q

⊖ None

Financial Health ^Q

Moderate

1-Star Price ^Q

> 2.85

5-Star Price ^Q

< 1.31

As of last market close, Cia Paranaense De Energia has a price-to-earnings ratio of 12.87, falling below the 44th percentile in its sector (where a lower percentile means a lower ratio) and ranging between 11.43 and 23.69 over the past year. The company's price-to-free cash flow ratio is 11.99, falling at the 52nd percentile in its sector and ranging between 6.1 and 12.07 over the past year.

Contact

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<https://www.copel.com>

Financials as of 29 Nov 2023 (Fiscal Year End 31 Dec 2023)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	YTD	Fiscal
Revenue (Bil)	9.18	14.00	14.95	13.10	14.02	14.55	15.87	18.63	23.98	21.93	15.91	Revenue (Bil)
Operating Income (Mil)	1,086	1,616	1,991	1,782	1,994	2,157	3,129	4,892	3,455	1,311	2,167	Operating Income (Mil)
Operating Margin (%)	11.83	11.54	13.32	13.6	14.22	14.82	19.72	26.25	14.4	5.98	13.62	Operating Margin (%)
Net Income (Mil)	1,073	1,206	1,110	896	1,034	1,407	1,990	3,904	4,953	1,112	1,521	Net Income (Mil)
Diluted Earnings/Share	0.37	0.42	0.39	0.31	0.36	0.49	0.69	1.36	1.61	0.39	0.51	Diluted Earnings/Share
Operating Cash Flow (Mil)	1,338	1,091	1,321	1,477	989	1,771	2,945	3,941	3,387	3,903	2,448	Operating Cash Flow (Mil)
Capital Spending (Mil)	-1,719	-2,149	-1,721	-2,213	-2,012	-1,216	-373	-237	-343	-957	-154	Capital Spending (Mil)
Free Cash Flow (Mil)	-382	-1,058	-401	-736	-1,023	555	2,572	3,704	3,044	2,945	2,294	Free Cash Flow (Mil)
Avg Shares Outstand(Mil)	2,737	2,737	2,737	2,737	2,737	2,737	2,737	2,737	2,737	2,737	2,983	Avg Shares Outstand(Mil)

Valuation as of 29 Nov 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Current	Calendar
Price/Fair Value ^Q	0.96	0.93	0.87	0.92	0.96	0.82	0.99	0.89	0.87	0.82	0.92	Price/Fair Value ^Q
Price/Sales	0.91	0.92	0.41	0.58	0.54	0.57	1.21	0.96	0.78	0.92	1.25	Price/Sales
Price/Earnings	11.01	8.32	6.60	5.55	17.25	8.17	9.52	5.28	4.20	13.14	13.01	Price/Earnings
Price/Cash Flow	5.05	12.01	8.75	4.31	4.76	6.17	8.32	4.08	4.98	5.73	9.04	Price/Cash Flow
Price/Book	0.65	0.76	0.47	0.50	0.45	0.53	1.07	0.84	0.83	1.00	1.22	Price/Book

Operating Performance as of 29 Nov 2023 (Fiscal Year End 31 Dec 2023)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Q3	Fiscal (%)
Return on Assets	4.84	4.95	4.37	3.23	3.25	4.07	5.36	9.18	10.28	2.24	0.81	Return on Assets
Return on Equity	8.62	9.28	8.65	6.59	6.87	9.01	11.96	20.98	23.7	5.21	1.96	Return on Equity
Rtn on Invested Capital	6.63	6.15	5.14	3.78	4.06	4.89	6.61	12.41	14.93	3.37	1.13	Rtn on Invested Capital

Dividends as of 29 Nov 2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Current	Calendar (%)
Dividend Per Share	0.22	0.24	0.09	0.13	0.30	0.12	0.28	0.31	1.31	0.89	0.13	Dividend Per Share
Trailing Dividend Yield	—	—	4.82	4.17	4.1	3.45	3.55	5.28	—	4.86	7.28	Trailing Dividend Yield
Buyback Yield	—	—	—	—	—	—	—	—	—	—	—	Buyback Yield

Appendix

Economic Moat [®]History as of 29 Nov 2023 (No Moat: 0.00-0.70, Narrow Moat: 0.70-0.99, Wide Moat: 0.99-1.00)

Year	January	February	March	April	May	June	July	August	September	October	November	December
2023	0.16	0.18	0.20	0.13	0.18	0.15	0.19	0.23	0.31	0.39	0.35	—
2022	0.18	0.23	0.30	0.26	0.21	0.39	0.66	0.64	0.66	0.33	0.25	0.29
2021	0.26	0.15	0.12	0.17	0.08	0.07	0.05	0.11	0.05	0.09	0.17	0.17
2020	0.69	0.32	0.24	0.31	0.63	0.62	0.69	0.21	0.25	0.39	0.30	0.20
2019	0.17	0.06	0.20	0.30	0.46	0.49	0.27	0.11	0.05	0.42	0.48	0.42
2018	0.52	0.21	0.15	0.14	0.07	0.08	0.16	0.21	0.28	0.13	0.08	0.04

Quantitative Equity Report Overview

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Quantitative Equity Ratings

Morningstar's quantitative equity ratings consist of: (i) Quantitative Fair Value Estimate, (ii) Quantitative Star Rating, (iii) Quantitative Uncertainty, (iv) Quantitative Economic Moat, and (v) Quantitative Financial Health (collectively the "Quantitative Ratings").

The Quantitative Ratings are calculated daily and derived from the analyst-driven ratings of a company's peers as determined by statistical algorithms. Morningstar, Inc. ("Morningstar", "we", "our") calculates Quantitative Ratings for companies whether or not it already provides analyst ratings and qualitative coverage. In some cases, the Quantitative Ratings may differ from the analyst ratings because a company's analyst-driven ratings can significantly differ from other companies in its peer group.

i. **Quantitative Fair Value Estimate:** Intended to represent Morningstar's estimate of the per share dollar amount that a company's equity is worth today. Morningstar calculates the Quantitative Fair Value Estimate using a statistical model derived from the Fair Value Estimate Morningstar's equity analysts assign to companies. Please go to <http://global.morningstar.com/equitydisclosures> for information about Fair Value Estimate Morningstar's equity analysts assign to companies.

ii. **Quantitative Economic Moat:** Intended to describe the strength of a firm's competitive position. It is calculated using an algorithm designed to predict the Economic Moat rating a Morningstar analyst would assign to the stock. The rating is expressed as Narrow, Wide, or None.

Narrow – assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 70% but less than 99%.

Wide – assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 99%.

None – assigned when the probability of an analyst receiving a "Wide Moat" rating by an analyst is less than 70%.

iii. **Quantitative Star Rating:** Intended to be the summary rating based on the combination of our Quantitative Fair Value Estimate, current market price, Quantitative Uncertainty Rating, and momentum. The rating is expressed as One-Star, Two-Star, Three-Star, Four-Star, and Five-Star.

★ – the stock is overvalued with a reasonable margin of safety.

*Log (Quant FVE/Price) < -1*Quantitative Uncertainty*

*Micro-Caps: Log (Quant FVE/Price) < -1.5*Quantitative Uncertainty*

★★ – the stock is somewhat overvalued.

*Log (Quant FVE/Price) between (-1*Quantitative Uncertainty, -0.5*Quantitative Uncertainty)*

*Micro-Caps: Log (Quant FVE/Price) between (-1.5*Quantitative Uncertainty, -0.75*Quantitative Uncertainty)*

★★★ – the stock is approximately fairly valued.

*Log (Quant FVE/Price) between (-0.5*Quantitative Uncertainty, 0.5*Quantitative Uncertainty)*

*Micro-Caps: Log (Quant FVE/Price) between (-0.75*Quantitative Uncertainty, 0.75*Quantitative Uncertainty)*

★★★★ – the stock is somewhat undervalued.

*Log (Quant FVE/Price) between (0.5*Quantitative Uncertainty, 1*Quantitative*

Uncertainty)

*Micro-Caps: Log (Quant FVE/Price) between (0.75*Quantitative Uncertainty, 1.5*Quantitative Uncertainty)*

★★★★★ – the stock is undervalued with a reasonable margin of safety.

*Log (Quant FVE/Price) > 1*Quantitative Uncertainty*

*Micro-Caps: Log (Quant FVE/Price) > 1.5*Quantitative Uncertainty*

After the initial calculation for the star rating, there is a final filtering step based on the momentum of the company. We rank the companies based on their 12-1 month momentum, then restrict those below the 30th percentile to a maximum of 3 stars.

iv. **Quantitative Uncertainty:** Intended to represent Morningstar's level of uncertainty about the accuracy of the Quantitative Fair Value Estimate. Generally, the lower the Quantitative Uncertainty, the narrower the potential range of outcomes for that particular company. The rating is expressed as Low, Medium, High, Very High, and Extreme.

Low – the interquartile range for possible fair values is less than 10%

Medium – the interquartile range for possible fair values is less than 15% but greater than 10%

High – the interquartile range for possible fair values is less than 35% but greater than 15%

Very High – the interquartile range for possible fair values is less than 80% but greater than 35%

Extreme – the interquartile range for possible fair values is greater than 80%

v. **Quantitative Financial Health:** Intended to reflect the probability that a firm will face financial distress in the near future. The calculation uses a predictive model designed to anticipate when a company may default on its financial obligations. The rating is expressed as Weak, Moderate, and Strong.

Weak – assigned when Quantitative Financial Health < 0.2

Moderate – assigned when Quantitative Financial Health is between 0.2 and 0.7

Strong – assigned when Quantitative Financial Health > 0.7

Other Definitions

i. **Last Close** – Price of the stock as of the close of the market of the last trading day before date of the report.

ii. **Quantitative Valuation** – Using the below terms, intended to denote the relationship between the security's **Last Price** and Morningstar's quantitative fair value estimate for that security.

Undervalued – Last Price is below Morningstar's quantitative fair value estimate.

Fairly Valued – Last Price is in line with Morningstar's quantitative fair value estimate.

Fairly Valued – Last Price is in line with Morningstar's quantitative fair value estimate.

Overvalued – Last Price is above Morningstar's quantitative fair value estimate.

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Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

Based on their quantitative scores, companies are grouped into one of five Risk Categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree

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The ESG Risk Rating Assessment is a visual representation of Sustainalytics ESG Risk Categories on a 1 to 5 scale. Companies with Negligible Risk = 5 Globes, Low Risk = 4, Medium Risk = 3 Globes, High Risk = 2 Globes, Severe Risk = 1 Globe. For more information, please visit sustainalytics.com/esg-ratings/

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