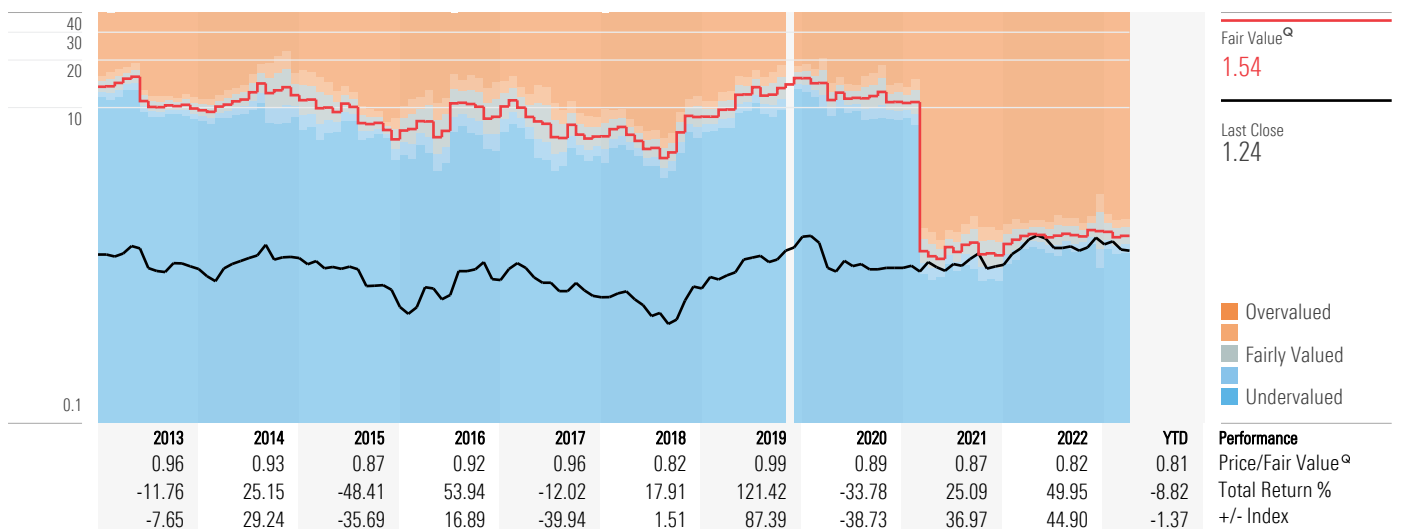


Cia Paranaense De Energia Copel Class B XCOP ★★★★★ 20 Mar 2023, 22:37 UTC

Economic Moat ^Q	Uncertainty ^Q	Price/Fair Value ^Q	ESG Risk Rating Assessment ¹	Trailing Dividend Yield %	Market Cap	Investment Style	Sector	Industry
None	High	0.8	1 Mar 2023 06:00, UTC	5.33	3.0901 Bil	Mid Value	Utilities	Utilities - Diversified



As of 20 Mar 2023 | Index: Morningstar Brazil GR BRL. Fair Value data as of 20 Mar 2023, 22:37 UTC.

The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating. Lee Davidson, Head of Manger and Quantitative Research, oversees the methodology that supports Quantitative Fair Value Estimates and Quantitative Star Ratings. Mr. Davidson is guided by the Code of Ethics and Investment Research Integrity Policy of Morningstar Research Services LLC, a subsidiary of Morningstar, Inc. Morningstar's Quantitative Research team, which consist of employees of Morningstar, Inc., are guided by Morningstar, Inc.'s Code of Ethics. For information regarding Conflicts of Interests, visit <http://global.morningstar.com/equitydisclosures>.

Valuation ^Q as of 20 Mar 2023



XCOP is Under Valued at a 19% discount.

Economic Moat ^Q

⊖ None

Financial Health ^Q

Moderate

1-Star Price ^Q

> 1.97

5-Star Price ^Q

< 1.20

Financials as of 20 Mar 2023 (Fiscal Year End 31 Dec 2022)

	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	—	16.30	Revenue (Bil)
Operating Income (Mil)	1,086	1,616	1,991	1,782	1,994	2,157	3,129	4,892	3,455	—	1,009	Operating Income (Mil)
Operating Margin (%)	11.83	11.54	13.32	13.6	14.22	14.82	19.72	26.25	14.4	—	6.19	Operating Margin (%)
Net Income (Mil)	1,073	1,206	1,110	896	1,034	1,407	1,990	3,904	4,953	—	491	Net Income (Mil)
Diluted Earnings/Share	0.37	0.42	0.39	0.31	0.36	0.49	0.69	1.36	1.61	—	0.18	Diluted Earnings/Share
Operating Cash Flow (Mil)	1,338	1,091	1,321	1,477	989	1,771	2,945	3,941	3,387	—	3,219	Operating Cash Flow (Mil)
Capital Spending (Mil)	-1,719	-2,149	-1,721	-2,213	-2,012	-1,216	-373	-237	-343	—	-464	Capital Spending (Mil)
Free Cash Flow (Mil)	-382	-1,058	-401	-736	-1,023	555	2,572	3,704	3,044	—	2,756	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	Avg Shares Outstand (Mil)
Dividend Per Share	—	—	0.09	0.13	0.30	0.12	0.28	0.31	1.31	0.89	0.09	Dividend Per Share

Valuation as of 20 Mar 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	0.81	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	0.84	Price/Sales
Price/Earnings	11.00	8.32	6.60	5.55	17.25	8.17	9.52	5.28	4.20	13.14	12.09	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	5.27	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	0.92	Price/Book

Operating Performance as of 20 Mar 2023 (Fiscal Year End 31 Dec 2022)

	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	—	0.73	Return on Assets
Return on Equity	8.62	9.28	8.65	6.59	6.87	9.01	11.96	20.98	23.7	—	1.75	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	—	1.0	Rtn on Invested Capital

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 telecommunications. 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 thermoelectric plants. The company was designed to allow Parana to manage the distribution of power and related services, so the state is a major shareholder.

Quantitative Equity Reports Overview

The quantitative report on equities consists of data, statistics and quantitative equity ratings on equity securities. Morningstar, Inc.'s quantitative equity ratings are forward looking and are generated by a statistical model that is based on Morningstar Inc.'s analyst-driven equity ratings and quantitative statistics. Given the nature of the quantitative report and the quantitative ratings, there is no one analyst in which a given report is attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative equity ratings used in this report. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities.

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.

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

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

Sustainalytics ESG Risk Rating Assessment: The ESG Risk Rating Assessment is provided by Sustainalytics; a Morningstar company. Sustainalytics' ESG Risk Ratings measure the degree to which company's economic value at risk is driven by environment, social and governance (ESG) factors.

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 of unmanaged ESG risk across all subindustries covered.

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/

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

This Report **has not been made available** to the issuer of the security prior to publication.

Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report.

The quantitative equity ratings are not statements of fact. Morningstar does not guarantee the completeness or accuracy of the assumptions or models used in determining the quantitative equity ratings. In addition, there is the risk that the price target will not be met due to such things as unforeseen changes in demand for the company's products, changes in management, technology, economic development, interest rate development, operating and/or material costs, competitive pressure, supervisory law, exchange rate, and tax rate. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions. A change in the fundamental factors underlying the quantitative equity ratings can mean that the valuation is subsequently no longer accurate.

For more information about Morningstar's quantitative methodology, please visit www.corporate.morningstar.com.

General Disclosure

The Quantitative Equity Report ("Report") is derived from data, statistics and information within Morningstar, Inc.'s database as of the date of the Report and is subject to change without notice. The Report is for informational purposes only, intended for financial professionals and/or sophisticated investors ("Users") and should not be the sole piece of information used by such Users or their clients in making an investment decision. While Morningstar has obtained data, statistics and information from sources it believes to be reliable, Morningstar does not perform an audit or seeks independent verification of any of the data, statistics, and information it receives.

The quantitative equity ratings noted the Report are provided in good faith, are as of the date of the Report and are subject to change. While Morningstar has obtained data, statistics and information from sources it believes to be reliable, Morningstar does not perform an audit or seeks independent verification of any of the data, statistics, and information it receives.

The quantitative equity ratings are not a market call, and do not replace the User or User's clients from conducting their own due-diligence on the security.

The quantitative equity rating is not a suitability assessment; such assessments take into account many factors including a person's investment objective, personal and financial situation, and risk tolerance all of which are factors the quantitative equity rating statistical model does not and did not consider.

Prices noted with the Report are the closing prices on the last stock-market trading day before the publication date stated, unless another point in time is explicitly stated.

Unless otherwise provided in a separate agreement, recipients accessing this report may only use it in the country in which the Morningstar distributor is based. Unless stated otherwise, the original distributor of the report is Morningstar Inc., a U.S.A. domiciled financial institution.

This report was created with no regard to investment objectives, financial situation or particular needs of any specific User or User's clients. Therefore, investments discussed and recommendations made herein may not be suitable for all investors: recipients of this report must exercise their own independent judgment as to the suitability of such investments and recommendations in the light of their own investment objectives, experience, taxation status and financial position.

The information, data and statistics presented herein are not warranted to be accurate, correct, complete or timely. Unless otherwise provided in a separate agreement, Morningstar makes no representation that the report contents meet all of the presentation and/or disclosure standards applicable in the jurisdiction the recipient is located.

Except as otherwise required by law or provided for in a separate agreement, Morningstar and its officers, directors and employees shall not be responsible or liable for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions within the report. Morningstar encourages recipients of this report to read all relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an investment decision and when deemed necessary, to seek the advice of a legal, tax, and/or accounting professional.

The Report and its contents are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Morningstar or its affiliates to any registration or licensing requirements in such jurisdiction.

Where this report is made available in a language other than English and in the case of inconsistencies between the English and translated versions of the report, the English version will control and supersede any ambiguities associated with any part or section of a report that has been issued in a foreign language. Neither the analyst, Morningstar, or Morningstar affiliates guarantee the accuracy of the translations.

This report may be distributed in certain localities, countries and/or jurisdictions ("Territories") by independent third parties or independent intermediaries and/or distributors ("Distributors"). Such Distributors are not acting as agents or representatives of the analyst or Morningstar. In Territories where a Distributor distributes our report, the Distributor, and not the analyst or Morningstar, is solely responsible for complying with all applicable regulations, laws, rules, circulars, codes and guidelines established by local and/or regional regulatory bodies, including laws in connection with the distribution third-party research reports.

Conflicts of Interest:

Morningstar, Inc. may hold a long position in the security subject of this investment research report that exceeds 0.5% of the total issued share capital of the security. To determine if such is the case, please click <http://msi.morningstar.com> and <http://mdi.morningstar.com>.

The Head of Quantitative Research compensation is derived from Morningstar's overall earnings and consists of salary, bonus and restricted stock units of Morningstar, Inc.

Morningstar does not receive commissions for providing research and does not charge companies to be rated.

Morningstar is not a market maker or a liquidity provider of the security noted within this report.

Morningstar has not been a lead manager or co-lead manager over the previous 12-months of any publicly disclosed offer of financial instruments of the issuer.

Morningstar affiliates (i.e., its investment management group) have arrangements with financial institutions to provide portfolio management/ investment advice some of which an analyst may issue investment research reports on. However, the Head of Quantitative Research does not have authority over Morningstar's investment management group's business arrangements nor allow employees from the investment management group to participate or influence the analysis or opinion prepared by them.

Morningstar, Inc. is a publically traded company (Ticker Symbol: MORN) and thus a financial institution the security of which is the subject of this report may own more than 5% of Morningstar, Inc.'s total outstanding shares. Please access Morningstar, Inc.'s proxy statement, "Security Ownership of Certain Beneficial Owners and Management" section <https://shareholders.morningstar.com/investor-relations/financials/sec-filings/default.aspx>

Morningstar may provide the product issuer or its related entities with services or products for a fee and on an arms' length basis including software products and licenses, research and consulting services, data services, licenses to republish our ratings and research in their promotional material, event sponsorship and website advertising.

Further information on Morningstar's conflict of interest policies is available from <http://global.morningstar.com/equitydisclosures>. Also, please note analysts are subject to the CFA Institute's Code of Ethics and Standards of Professional Conduct.

Morningstar's quantitative ratings are available for more than 28,000 companies in 86 countries that trade on 64 exchanges. If you wish to obtain further information regarding Morningstar's quantitative equity reports please contact your local Morningstar office.

For Recipients in Australia: This Report has been issued and distributed in Australia by Morningstar Australasia Pty Ltd (ABN: 95 090 665 544; ASFL: 240892). Morningstar Australasia Pty Ltd is the provider of the general advice ('the Service') and takes responsibility for the production of this report. The Service is provided through the research of investment products. To the extent the Report contains general advice it has been prepared without reference to an investor's objectives, financial situation or needs. Investors should consider the advice in light of these matters and, if applicable, the relevant Product Disclosure Statement before making any decision to invest. Refer to our Financial Services Guide (FSG) for more information at <http://www.morningstar.com.au/fsg.pdf>

For Recipients in Canada: This research is not prepared subject to Canadian disclosure requirements

For Recipients in Hong Kong: The Report is distributed by Morningstar Investment Management Asia Limited, which is regulated by the Hong Kong Securities and Futures Commission to provide services to professional investors only. Neither Morningstar Investment Management Asia Limited, nor its representatives, are acting or will be deemed to be acting as an investment advisor to any recipients of this information unless expressly agreed to by Morningstar Investment Management Asia Limited. For enquiries regarding

this research, please contact a Morningstar Investment Management Asia Limited Licensed Representative at <http://global.morningstar.com/equitydisclosures>.

For Recipients in India: This Investment Research is issued by Morningstar Investment Adviser India Private Limited. Morningstar Investment Adviser India Private Limited is registered with the Securities and Exchange Board of India as an Investment Adviser (Registration number INA000001357), providing investment advice and research, and as a Portfolio Manager (Registration number INP000006156). Morningstar Investment Adviser India Private Limited has not been the subject of any disciplinary action by SEBI or any other legal/regulatory body. Morningstar Investment Adviser India Private Limited is a wholly owned subsidiary of Morningstar Investment Management LLC. In India, Morningstar Investment Adviser India Private Limited has one associate, Morningstar India Private Limited, which provides data related services, financial data analysis and software development.

The Research Analyst has not served as an officer, director or employee of the fund company within the last 12 months, nor has it or its associates engaged in market making activity for the fund company.

*The Conflicts of Interest disclosure above also applies to relatives and associates of Manager Research Analysts in India # The Conflicts of Interest disclosure above also applies to associates of Manager Research Analysts in India. The terms and conditions on which Morningstar Investment Adviser India Private Limited offers Investment Research to clients, varies from client to client, and are detailed in the respective client agreement.

For recipients in Japan: The Report is distributed by Ibbotson Associates Japan, Inc., which is regulated by Financial Services Agency. Neither Ibbotson Associates Japan, Inc., nor its representatives, are acting or will be deemed to be acting as an investment advisor to any recipients of this information.

For recipients in Singapore: This Report is distributed by Morningstar Investment Adviser Singapore Pte Limited, which is licensed by the Monetary Authority of Singapore to provide financial advisory services in Singapore. Investors should consult a financial adviser regarding the suitability of any investment product, taking into account their specific investment objectives, financial situation or particular needs, before making any investment decisions.