

CREDIT OPINION

10 September 2025

Update



Send Your Feedback

RATINGS

Companhia Energetica de Minas Gerais - CEMIG

Domicile	Belo Horizonte, Minas Gerais, Brazil
Long Term Rating	Ba1
Type	LT Corporate Family Ratings
Outlook	Stable

Please see the [ratings section](#) at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

Contacts

Bruno Britto +55.11.3043.7343
Analyst
bruno.britto@moody's.com

Lucas De Furuyama
Payroll Co-op Student
lucas.defuruyama@moody's.com

Cristiane Spercel +55.11.3043.7333
Associate Managing Director
cristiane.spercel@moody's.com

CLIENT SERVICES

Americas 1-212-553-1653
Asia Pacific 852-3551-3077
Japan 81-3-5408-4100
EMEA 44-20-7772-5454

Companhia Energetica de Minas Gerais - CEMIG

Update to credit analysis

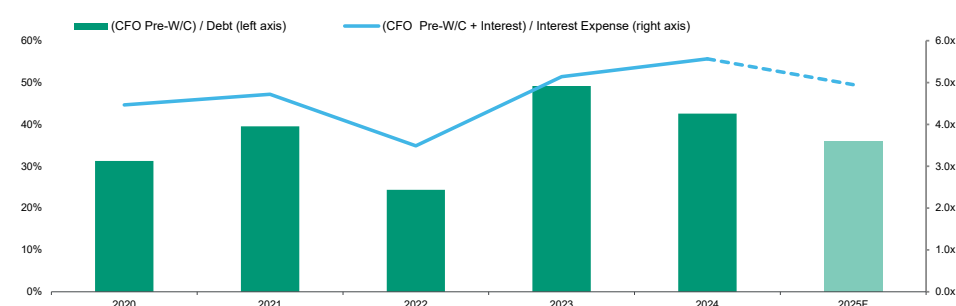
Summary

[Companhia Energetica de Minas Gerais - CEMIG](#)'s (CEMIG) credit rating is based on its extensive and diverse electricity operations in Brazil and its strong credit metrics despite the country's high interest rates and inflationary pressures in recent years. Our expectation is that its consolidated leverage metrics will remain solid, with a projected 3-year average cash flow from operations pre-working capital/debt and the interest coverage ratio of 30% and 3.8x, respectively. These figures compare favorably with regional peers.

CEMIG's rating is constrained by the sovereign ([Government of Brazil](#) [Ba1 stable]), given its local revenue base and regulated business profile, among other considerations. Nonetheless, an upgrade of Brazil's rating would not immediately reflect in an upgrade of CEMIG, given its governance structure that cannot be completely de-linked from the current stresses facing its controlling shareholder, the [State of Minas Gerais](#) (B1 positive). Although the company's credit quality is much stronger than that of its controlling shareholder, its rating is limited to three notches above the shareholder's B1 issuer rating.

Exhibit 1

Besides remaining strong, some deterioration is expected on CEMIG's interest coverage and cash flow to debt metrics



All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology.

The forecasts are Moody's opinion and do not represent the views of the issuer.

Source: Moody's Financial Metrics™ and Moody's Ratings forecasts

Credit strengths

- » Strong internal cash position
- » Diversified operations in the energy generation, transmission and distribution segments, as well as natural gas distribution
- » Large scale

Credit challenges

- » Growing energy trading business, with volumes that exceed its generation capacity
- » Expiration of key hydro concessions in 2026 and 2027, which will dent cash generation
- » High capital spending program in the next four years

Rating outlook

The stable outlook is aligned with that of Brazil, Government of and also takes into consideration that CEMIG will maintain a strong credit profile and adequate liquidity over the next 12-18 months, addressing its refinancing needs in advance of their maturities.

Factors that could lead to upgrade

A ratings upgrade would be considered upon an upgrade of both the State of Minas Gerais' issuer rating and that of the Government of Brazil. A ratings upgrade would be contingent on CEMIG maintaining strong credit metrics and an adequate debt maturity profile.

Factors that could lead to downgrade

A downgrade of the ratings could result from increased liquidity risks or refinancing delays. A downgrade would be considered if the company's credit metrics deteriorate such that the consolidated CFO pre-WC/debt falls below 16% or interest coverage falls below 3.0x for a sustainable period. In addition, adverse changes in the operating environment for Brazilian electricity companies, due to higher political interference or unfavorable regulatory changes, could prompt a downgrade.

Key indicators

Exhibit 2

Companhia Energetica de Minas Gerais - CEMIG

	2020	2021	2022	2023	2024	LTM Jun-25
CFO Pre-W/C + Interest / Interest	4.5x	4.7x	3.5x	5.1x	5.6x	4.6x
CFO Pre-W/C / Debt	31.3%	39.5%	24.3%	49.2%	42.6%	31.8%
CFO Pre-W/C – Dividends / Debt	27.5%	28.7%	7.8%	34.3%	12.8%	5.1%
Debt / Capitalization	46.0%	38.7%	35.4%	32.0%	33.0%	36.4%

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months.

Source: Moody's Financial Metrics™

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody.com> for the most updated credit rating action information and rating history.

Profile

Based in Belo Horizonte, Minas Gerais, Companhia Energetica de Minas Gerais - CEMIG (CEMIG) is a leading Brazilian utility company with operations in electricity distribution, generation and transmission. It has a 4.5 gigawatt (GW) installed capacity, 5,060 kilometers (km) of transmission lines and 41 substations nationwide. This does not include its share of around 15,000 kilometers of transmission lines from its subsidiary, Taesa. As of June 2025, the State of Minas Gerais holds a controlling stake with 51.0% of the voting capital, followed by FIA Dinâmica (32.8%) and BNDESPAR (11.1%), with other minority shareholders owning the remaining 5.1%. As of the 12 months that ended June 2025, CEMIG reported Moody's-adjusted net revenue of BRL42.0 billion and adjusted EBITDA of BRL9.6 billion.

Detailed credit considerations

CEMIG's credit quality is limited at three notches above its parent

Due to the State of Minas Gerais holding a controlling shareholder position, CEMIG's subsidiaries—CEMIG D and CEMIG GT—are classified as government-related issuers (GRIs), in accordance with our [Government-related issuers methodology](#) published in January 2024.

CEMIG's Ba1 Corporate Family Rating results from the application of our Joint Default Analysis (JDA) framework for government-related issuers, which considers the following input factors: a BCA of ba1 as measure of CEMIG standalone credit worthiness; the B1 rating of the State of Minas Gerais as CEMIG's controlling shareholder and support provider; our estimate of moderate implied government support in the case of financial distress; and a high default dependence between CEMIG and the State of Minas Gerais. We acknowledge that the much weaker credit quality of the State of Minas Gerais constrains the company's ability to receive timely financial support, if needed. Nonetheless, we assume that some form of extraordinary support from the state or indirectly from the central government would be forthcoming in a stress scenario given the essential nature of its regulated services.

We consider that the governance structure cannot be completely de-linked from the current stresses facing by its parent the State of Minas Gerais. Although the company's credit profile is much stronger than that of its controlling shareholder, we view CEMIG's credit quality is limited at three notches above the State of Minas Gerais' B1 issuer rating.

Revenue volatility is reduced by CEMIG's portfolio diversification

CEMIG's credit quality reflects its large scale and leading position as one of the largest integrated power utilities in Brazil. It holds an installed generation capacity of around 4.5 GW, more than 95% of which is hydro, and 5,060 km of transmission lines, as well as distributes electricity to 9.5 million consumers located in the State of Minas Gerais. The company's credit strength benefits from its relevant share of the more predictable regulated electricity distribution business, because of the expiration of power generation concessions and the company's continued investment in its distribution network.

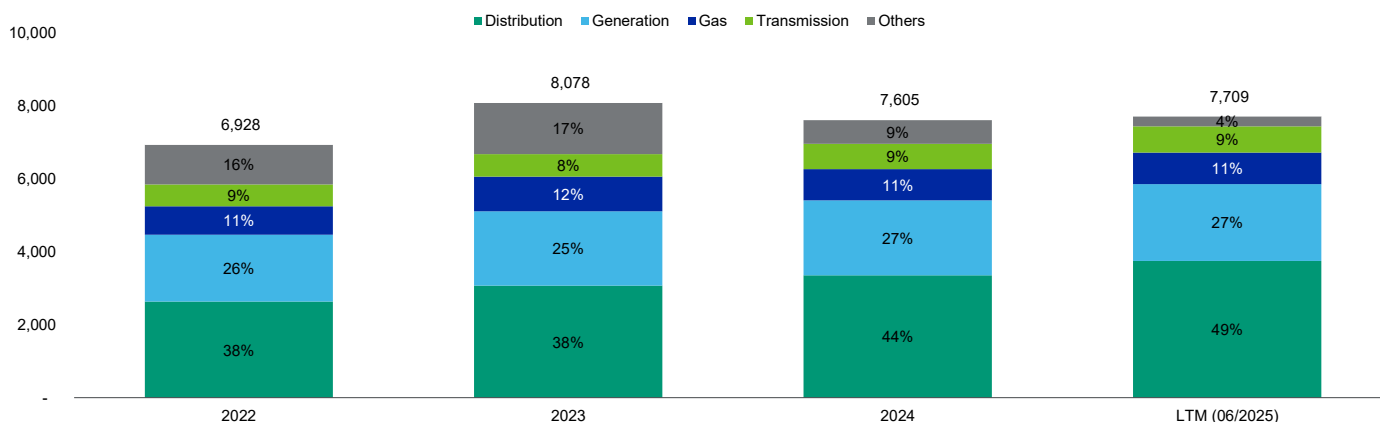
The diversified portfolio helps mitigate the cash flow volatility arising from hydrological risks. As of the second quarter of 2025, its distribution segment accounted for 54.9% of the company's EBITDA, followed by generation (24.6%), gas (11.0%), transmission (7.5%), and Trading, Holding Co and Equity Sales (2.0%) (see Exhibit 3).

Nonetheless, the company's consolidated credit quality incorporates the higher volatility of the power generation business than the distribution and transmission businesses. Currently, the upcoming expiration of the hydroelectric plant concessions of Sá Carvalho, Emborcação and Nova Ponte in 2026 and 2027 are credit weaknesses because they represent roughly 36.3% of the company's physical guarantees for power generation. Although the company plans to renew those concessions, the extension is not incorporated in our base case forecast, because of the uncertainty of the terms and conditions.

We continue to see the commercialization business as having higher risk, despite the company's successful track record. The company segregated most of its volatile commercialization business from [Cemig Geracao e Transmissao S.A.](#) (CEMIG GT, Ba1 stable) to Cemig Holding S.A. This move has set the stage for an enhancement in terms of the transparency of operations and an improvement in the predictability of cash flow in the generation business.

Exhibit 3

CEMIG's EBITDA is diversified across the distribution, generation and transmission segments
EBITDA breakdown (BRL million)



Source: Company filings

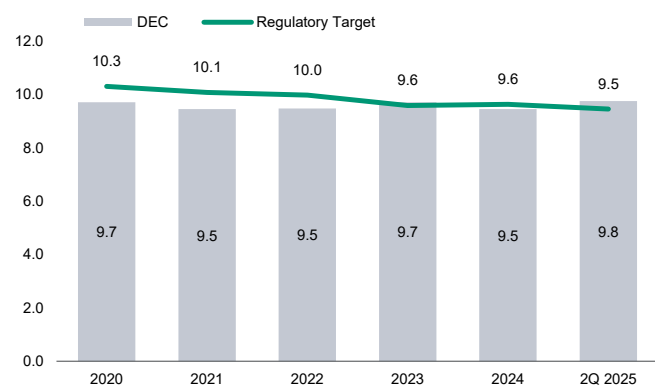
The business turnaround drove an improvement in credit metrics and operational performance

CEMIG has been implementing a strategic portfolio management approach since 2019, divesting from nonessential assets that are not aligned with the company's current strategy to enhance operational efficiency. Furthermore, the company is actively engaged in liability management, aimed at lengthening the amortization schedule and improving the costs of its obligations.

In its distribution business, since 2020, the company has enhanced and complied with regulatory limits for Equivalent Duration (DEC) and Frequency (FEC) of Interruptions per Consumer, except in 2023 due to storm-related setbacks and in the twelve months ending June 2025 regarding DEC, when it reached 9.8 hours, slightly above the regulatory target. As for the FEC, the indicator reached 5.4 hours, remaining within the regulatory target of 5.8 hours. We expect DEC and FEC to remain within regulatory targets in the next three years, as Cemig continues its large investment plan.

Exhibit 4

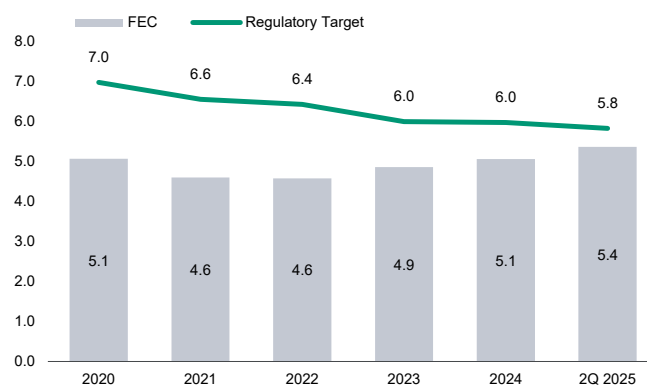
DEC slightly above regulatory target
Equivalent Duration of Interruptions per Consumer (DEC)



Source: Company filings

Exhibit 5

While FEC continues to comply with regulatory target
Frequency (FEC) of Interruptions per Consumer



Source: Company filings

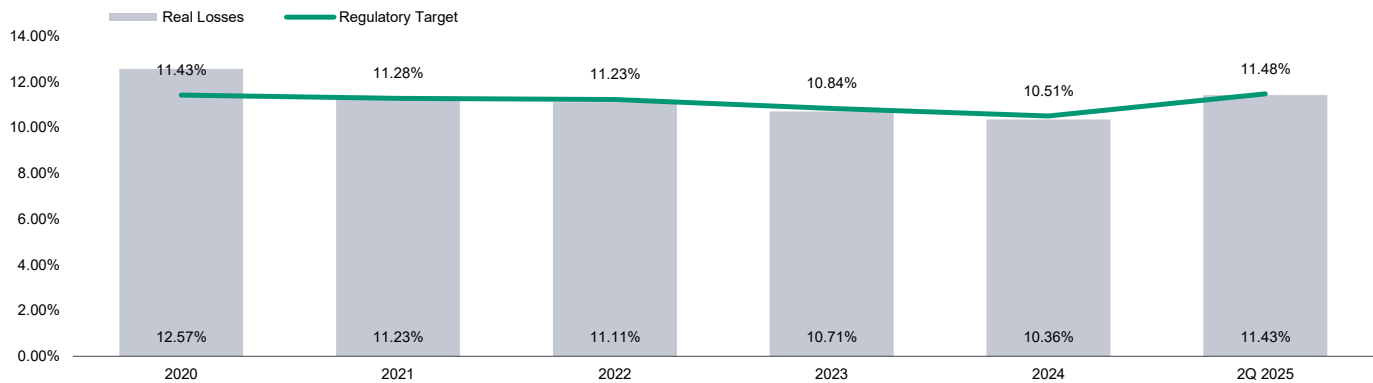
As of June 2025, CEMIG's subsidiary [Cemig Distribuicao S.A.](#) (CEMIG D, Ba1 stable) reported a continuous high collection index of 99.0%. This surge primarily resulted from the amplified use of collection tools like e-mails, collection letters, legal protests and disconnections. These methods improved the likelihood of collecting from accounts previously deemed as loss or impaired. The company is also working on initiatives to combat energy losses, including a record number of inspections to detect irregularities. This enabled the company to maintain reported total losses below the regulatory limits since 2021. In June 2025, the company reported

total energy losses for the previous 12 months at 11.43%, within the regulatory limit of 11.48%. We expect that significant investment plan will lead the Company to continue to operate within the regulatory standards.

Exhibit 6

Cemig continues compliant with energy losses regulatory target

Energy Losses



Source: Company filings

As anticipated, leverage increased in 2025, primarily due to the need to finance the substantial capital expenditures plans, with total debt reaching BRL 17.4 billion, incorporating Moody's standard adjustments, as of June 2025. We expect leverage metrics to remain strong over the next three years, although interest coverage and cash flow generation are likely to experience some deterioration. We project the three-year average CFO pre-working capital to debt and interest coverage ratio to remain around 30% and 3.8x, respectively.

Strategic divestments have boosted liquidity and allowed the company to focus on strategic assets

CEMIG's divestiture plan has boosted its cash position, and allowed the company to focus on its operations in the State of Minas Gerais. In 2025, CEMIG continued to advance its strategic portfolio optimization through a series of targeted transactions. The company completed the sale of 15 small hydroelectric plants (PCH/CGH), a move that generated over BRL100 million. This strategy has been more evident in its past divestments, including its stakes in Light, Renova, Santo Antonio, and, more recently, Aliança. The sale of Aliança, in particular, has significantly bolstered the liquidity of Cemig GT, aiding the subsidiary to settle the Eurobond in 2024.

CEMIG is undergoing a concession renewal process for critical assets that are nearing expiration. Currently, the upcoming expiration of the hydroelectric plant concessions for Sá Carvalho, Emborcação, and Nova Ponte in 2026 and 2027 poses credit challenges. These concessions are significant, representing approximately 36.3% of CEMIG's physical guarantees for power generation. Currently, there are three primary strategies for the renewal of the power plants: 1) renewing under a quota regime without grant payments; 2) selling a 51% stake in the assets and renewing with grant payments, which would necessitate approval from the State Assembly; and 3) negotiate a compromise with the federal government that allows Cemig to retain 100% ownership of the assets while paying a grant, a path that would require a modification in federal policy regarding concession renewals.

In addition, Cemig GT, Cemig PCH S.A., and the Queimado Consortium won GSF credits in the August 2025 auction held by CCEE. As a result, concessions for Queimado and Pai Joaquim will be extended by seven years, and Irapé by three years, enhancing portfolio quality, in exchange for approximately BRL 199.4 million. To support the transaction, Cemig secured a USD 40 million one-year loan.

Adequate tariff periodic review

In May 2025, Brazil's electricity regulator ANEEL approved an average tariff increase of 7.78% for CEMIG D as part of its annual tariff review. The adjustment included a 1.36% increase in operational expenses (Portion B), a 6.12% escalation in uncontrollable costs (Portion A), and a 0.30% rise in financial components. In comparison, the IPCA inflation index rose by 5.53% since the last adjustment in May 2024. Tariffs for low-voltage clients and residential consumers increased by 7.03% and 6.86%, respectively, while high-voltage clients experienced an average adjustment of 9.45%.

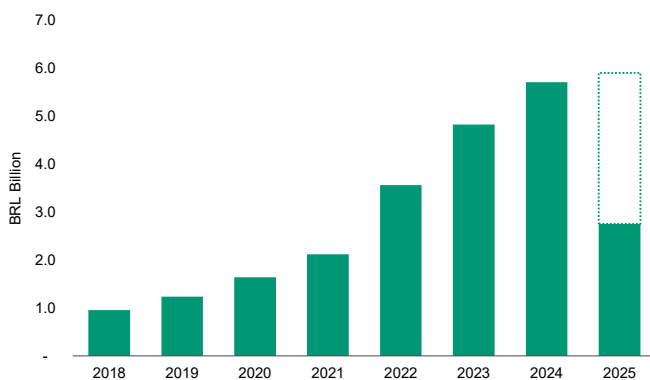
In May 2023, CEMIG D had their last periodic tariff review (PTR) process, which occurs every five years, and saw ANEEL approve an average tariff increase of 13.27%. Moreover, the Net Regulatory Remuneration Base of Assets, as recognized by ANEEL, was BRL15.2 billion, marking an increase of 71% from the previous PTR. This remarkable increase aligns with the historical capital expenditure from 2018 to 2022.

Increase in capital spending to modernize and expand the distribution network

CEMIG has progressively increased its capital spending in recent years, with its Moody's-adjusted capital spending reaching BRL 5.8 billion in the twelve months ending June 2025, up from BRL 2.1 billion in 2021. The company plans to invest BRL 32.7 billion from 2025 to 2029, about two-thirds of which is already contracted. According to CEMIG, approximately 78% of the 2025 investment plan is in the distribution segment, focused on system expansion, maintenance and modernization.

Exhibit 7

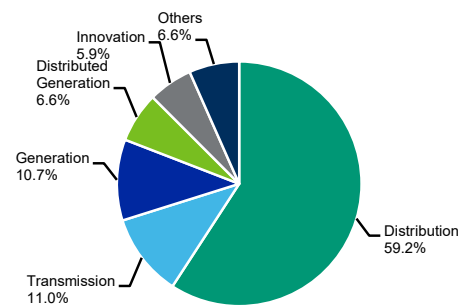
Cemig's investment plan has been increasing significantly



Source: Company filings

Exhibit 8

Planned capital spending for 2025-29, mainly concentrated in the distribution business Capex breakdown



Source: Company filings

Key investment initiatives include transitioning rural areas from a monophasic to a triphasic grid system, thereby enabling rural customers to consume more energy, and the deployment of approximately 49 thousand smart meters in the 1H25 in the distribution segment. The smart meters aim to remotely monitor captive customers' consumption, and is expected to improve efficiency levels and quality indicators.

These substantial capital expenditures are vital for sustaining the company's operations, reducing operational costs, and enhancing its regulatory base by 2028, which will likely be recognized by the regulator, in tariff revisions. Although this strategy will pressure the company's credit metrics over the next three years, we don't anticipate a significant impact on the credit profile.

Remaining debt maturities in 2025 have manageable refinancing pressure

In June 2025, the company reported net debt/Adjusted EBITDA of 1.6x on a consolidated basis. These indicators lie comfortably within the 3.0x covenants limits for CEMIG and CEMIG GT, respectively. The company has been able to meet its financial obligations with a comfortable buffer, which we expect to continue.

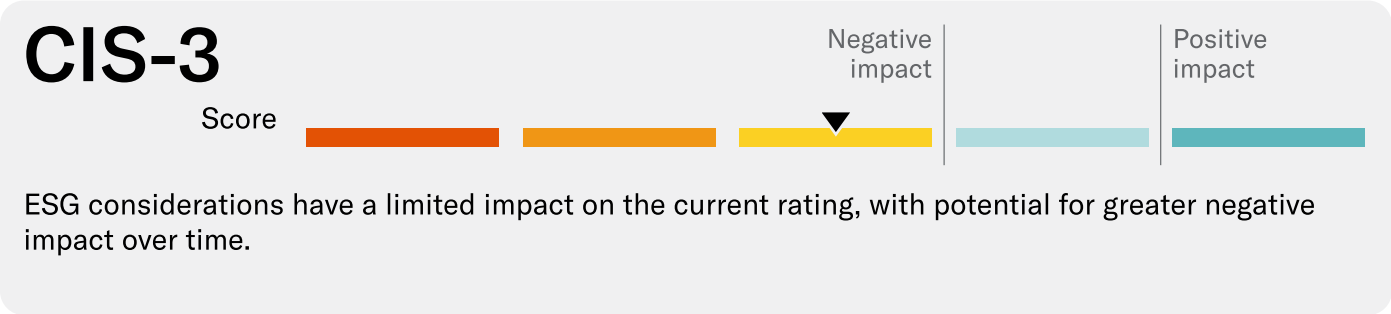
As part of its liability management plan, the Generation and Transmission segment fully repaid its Eurobond exposure in December 2024, following the sale of Aliança Energia to [Vale S.A.](#) (Baa2, stable) in August 2024. The transaction added BRL 2.7 billion to the company's cash reserves, which we view as credit positive.

The rating reflects our assumption that the company will successfully keep extending its debt maturity profile, mainly due to the access to diverse funding sources in both local and international debt markets.

ESG considerations

Companhia Energetica de Minas Gerais - CEMIG's ESG credit impact score is CIS-3

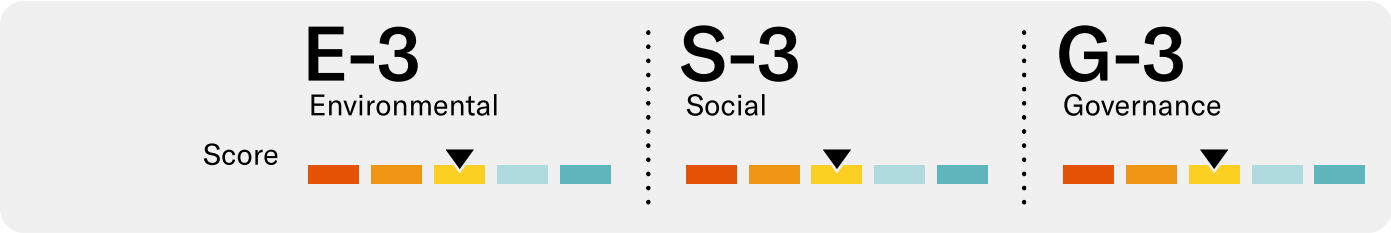
Exhibit 9
ESG credit impact score



Source: Moody's Ratings

CEMIG's **CIS-3** indicates that ESG considerations have a limited impact on the current credit rating with potential for greater negative impact over time. This is due to factors such as concentrated ownership risk, social risk from its distribution business, and environmental risk of its generation business.

Exhibit 10
ESG issuer profile scores



Source: Moody's Ratings

Environmental

CEMIG is exposed to physical climate risks, mostly in the form of extreme weather patterns. On the other hand, the Company has a positive carbon transition exposure as its generation portfolio is composed of renewable sources.

Social

Cemig is exposed to social risk reflecting the demographic and societal trends that increase public concern over environmental, social, or affordability issues could lead to adverse regulatory political intervention, broadly in line with other utilities in Latin America region. There is only a modest exposure to health and safety, human capital, customer relationships and responsible production.

Governance

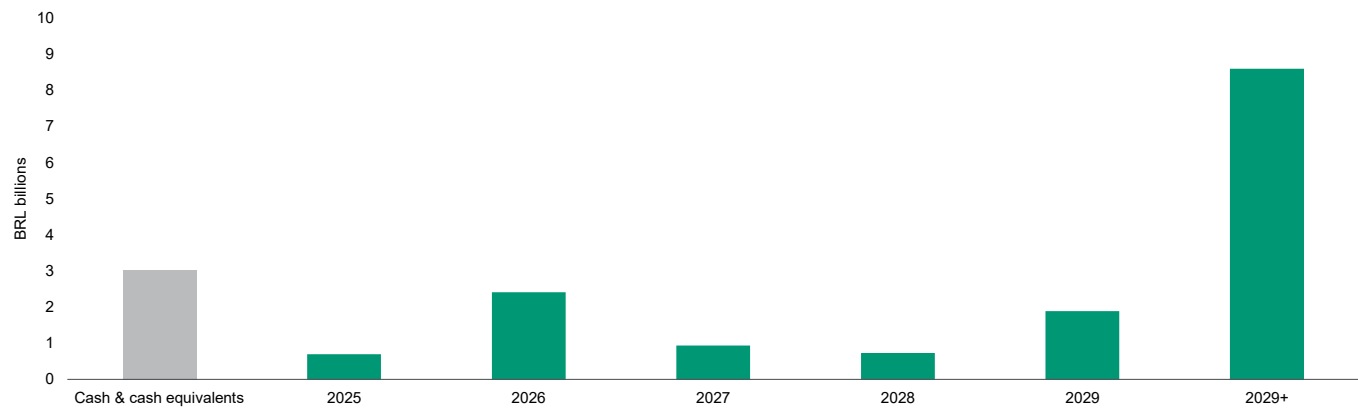
CEMIG is susceptible to ownership concentration and exposed to financial strategy and risk management reflected in the significant refinancing need in 2026 as well as the uncertainty around some generation plants concession renewal after 2026-27. Moreover, the guarantees provided for the debt of non-consolidated subsidiaries pose a risk factor within the current organizational structure.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Liquidity analysis

CEMIG's liquidity has been improving since the end of 2024, as they issued over BRL 4 billion in debt in 2025 already. As of June 2025, the company reported cash and equivalents of BRL 3.0 billion, which is sufficient to face the BRL 2.8 billion in short-term debt. Additionally, the large investment plans and dividend policy will lead to a negative free cashflow of BRL 2.9 billion for in Moody's base case, exacerbating the company's funding needs. Nonetheless, we believe the risk is manageable given the company's plan to access the banking and debt markets to finance the bulk of its capital expenditures.

Exhibit 11
CEMIG's consolidated debt schedule
June 2025



Source: Company filings

Structural considerations

The senior unsecured ratings of CEMIG's subsidiaries, CEMIG GT and CEMIG D, are at the same level as CEMIG's CFR. This reflects the high degree of financial links among CEMIG GT, CEMIG D and other subsidiaries within the CEMIG corporate family because of cross-default provisions embedded in the company's debt documents, as well as the guarantees provided by the holding company on the debt issued by its subsidiaries.

Methodology and scorecard

The principal methodology used in CEMIG's rating is the [Regulated Electric and Gas Utilities rating methodology](#). Under this methodology, CEMIG's scorecard-indicated outcome is Baa2 as of June 2025 and Baa2 in our 12-18-month forward-looking view. The scorecard-indicated outcome of Baa2 is two notches above the assigned rating, given the credit links to the Government of Brazil because of the highly regulated nature of its business and the exposure to local revenue. The rating is also constrained by its governance ties with the State of Minas Gerais, which is currently facing stress. Therefore, CEMIG's credit quality is limited at three notches above the State of Minas Gerais' B1 issuer rating.

Exhibit 12

Rating factors

Companhia Energetica de Minas Gerais - CEMIG

Regulated Electric and Gas Utilities Industry Scorecard			Current LTM Jun-25		Moody's 12-18 month forward view	
Factor 1 : Regulatory Framework (25%)			Measure	Score	Measure	Score
a) Legislative and Judicial Underpinnings of the Regulatory Framework			Ba	Ba	Ba	Ba
b) Consistency and Predictability of Regulation			Ba	Ba	Ba	Ba
Factor 2 : Ability to Recover Costs and Earn Returns (25%)						
a) Timeliness of Recovery of Operating and Capital Costs			Ba	Ba	Ba	Ba
b) Sufficiency of Rates and Returns			Ba	Ba	Ba	Ba
Factor 3 : Diversification (10%)						
a) Market Position			Baa	Baa	Baa	Baa
b) Generation and Fuel Diversity			Baa	Baa	Baa	Baa
Factor 4 : Financial Strength (40%)						
a) CFO pre-WC + Interest / Interest (3 Year Avg)			4.6x	A	5.0x - 3.3x	Baa
b) CFO pre-WC / Debt (3 Year Avg)			36.6%	Aa	35.9% - 29.5%	Aa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)			18.4%	A	16.1% - 18.8%	A
d) Debt / Capitalization (3 Year Avg)			34.7%	Aa	36.8% - 39.0%	A
Rating:						
Scorecard-Indicated Outcome Before Notching Adjustment				Baa2		Baa2
HoldCo Structural Subordination Notching				0		0
a) Scorecard-Indicated Outcome				Baa2		Baa2
b) Actual Rating Assigned						
Government-Related Issuer			Factor		Factor	
a) Baseline Credit Assessment			ba1		ba1	
b) Government Local Currency Rating			B1		B1	
c) Default Dependence			High		High	
d) Support			Moderate		Moderate	
e) Actual Rating Assigned			Ba1		Ba1	

All data based on adjusted financial data, which follow our Financial Statement Adjustments in the Analysis of Nonfinancial Corporations methodology. LTM = Last 12 months.

The forecasts are Moody's opinion and do not represent the views of the issuer.

Source: Moody's Financial Metrics™ and Moody's Ratings forecasts

Ratings

Exhibit 13

Category	Moody's Rating
COMPANHIA ENERGETICA DE MINAS GERAIS - CEMIG	
Outlook	Stable
Corporate Family Rating	Ba1
PARENT: MINAS GERAIS, STATE OF	
Outlook	Positive
Issuer Rating	B1
CEMIG DISTRIBUICAO S.A.	
Outlook	Stable
Issuer Rating - Dom Curr	Ba1
CEMIG GERACAO E TRANSMISSAO S.A.	
Outlook	Stable
Issuer Rating - Dom Curr	Ba1

Source: Moody's Ratings

© 2025 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S CREDIT RATINGS AFFILIATES ARE THEIR CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED OR OTHERWISE MADE AVAILABLE BY MOODY'S (COLLECTIVELY, "MATERIALS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE APPLICABLE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S MATERIALS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S MATERIALS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES OR OTHERWISE MAKES AVAILABLE ITS MATERIALS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND MATERIALS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR MATERIALS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. FOR CLARITY, NO INFORMATION CONTAINED HEREIN MAY BE USED TO DEVELOP, IMPROVE, TRAIN OR RETRAIN ANY SOFTWARE PROGRAM OR DATABASE, INCLUDING, BUT NOT LIMITED TO, FOR ANY ARTIFICIAL INTELLIGENCE, MACHINE LEARNING OR NATURAL LANGUAGE PROCESSING SOFTWARE, ALGORITHM, METHODOLOGY AND/OR MODEL.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND MATERIALS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the credit rating process or in preparing its Materials.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it. MCO and all MCO entities that issue ratings under the "Moody's Ratings" brand name ("Moody's Ratings"), also maintain policies and procedures to address the independence of Moody's Ratings' credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service, Inc. and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at ir.moody.com under the heading "Investor Relations — Corporate Governance — Charter and Governance Documents - Director and Shareholder Affiliation Policy."

Moody's SF Japan K.K., Moody's Local AR Agente de Calificación de Riesgo S.A., Moody's Local BR Agência de Classificação de Risco LTDA, Moody's Local MX S.A. de C.V., I.C.V., Moody's Local PE Clasificadora de Riesgo S.A., and Moody's Local PA Clasificadora de Riesgo S.A. (collectively, the "Moody's Non-NRSRO CRAs") are all indirectly wholly-owned credit rating agency subsidiaries of MCO. None of the Moody's Non-NRSRO CRAs is a Nationally Recognized Statistical Rating Organization.

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657 AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for India only: Moody's credit ratings, Assessments, other opinions and Materials are not intended to be and shall not be relied upon or used by any users located in India in relation to securities listed or proposed to be listed on Indian stock exchanges.

Additional terms with respect to Second Party Opinions and Net Zero Assessments (as defined in Moody's Ratings Rating Symbols and Definitions): Please note that neither a Second Party Opinion ("SPO") nor a Net Zero Assessment ("NZA") is a "credit rating". The issuance of SPOs and NZAs is not a regulated activity in many jurisdictions, including Singapore. JAPAN: In Japan, development and provision of SPOs and NZAs fall under the category of "Ancillary Businesses", not "Credit Rating Business", and are not subject to the regulations applicable to "Credit Rating Business" under the Financial Instruments and Exchange Act of Japan and its relevant regulation. PRC: Any SPO: (1) does not constitute a PRC Green Bond Assessment as defined under any relevant PRC laws or regulations; (2) cannot be included in any registration statement, offering circular, prospectus or any other documents submitted to the PRC regulatory authorities or otherwise used to satisfy any PRC regulatory disclosure requirement; and (3) cannot be used within the PRC for any regulatory purpose or for any other purpose which is not permitted under relevant PRC laws or regulations. For the purposes of this disclaimer, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454