CREDIT OPINION
29 May 2024

Update

Send Your Feedback

RATINGS

Empresas Publicas de Medellin E.S.P

Domicile	Medellin, Antioquia, Colombia
Long Term Rating	Baa3
Type	LT Issuer Rating - Dom Curr
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

Adrian Garza, CFA +52.55.1253.5709
VP-Sr Credit Officer
adrianjavier.garza@moodys.com

Cristiane Spercel +55.11.3043.7333
Senior Vice President/Manager
cristiane.spercel@moodys.com

CLIENT SERVICES

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

Empresas Publicas de Medellin E.S.P

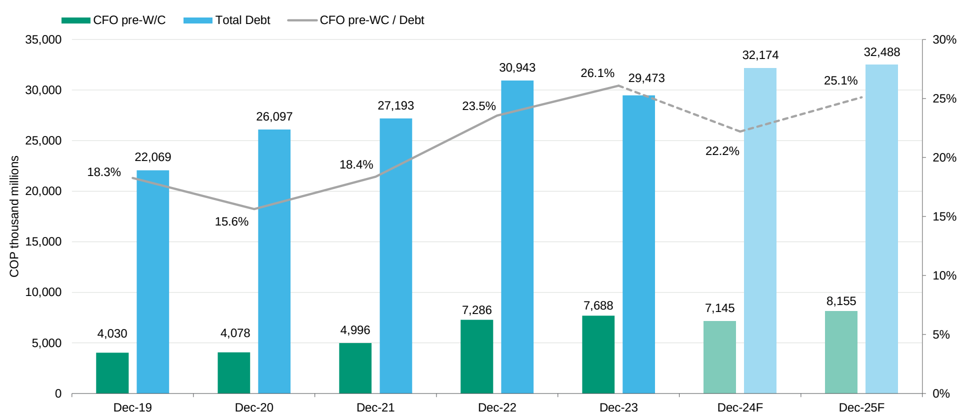
Update to credit analysis

Summary

Empresas Publicas de Medellin, E.S.P.'s (EPM, Baa3 stable) credit profile takes into consideration the application of our Joint Default Analysis (JDA), with the City of Medellin (Baa2 stable) as the support provider. This results in a one-notch uplift from the company's ba1 Baseline Credit Assessment (BCA), which reflects its large scale, presence in several countries and diversified operations.

EPM's ba1 BCA reflects the progress around the development of the Ituango hydro plant, whose first two units started operations in 2022. The BCA also factors in the uncertainties around the government's attempts to decrease electricity tariffs in Colombia (Baa2 stable). We expect credit metrics to deteriorate slightly in 2024 because of high interest rates, currency depreciation, tax reform and regulatory changes to lower electricity tariffs. However, EPM's cash position and credit metrics will continue to support its rating and BCA, and are likely to improve in 2025.

Exhibit 1
Strong cash flow generation supports sound credit metrics



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

Credit strengths

» Strong likelihood of support from the City of Medellin

» Diversified operations in terms of business segment and geography

Credit challenges

» Successfully starting operations at the Ituango hydro plant without delays and increasing investments

» Limited room for debt reduction given its significant capital spending program

» Increasing regulatory risk in Colombia

Rating outlook

The stable rating outlook reflects our expectation that EPM's credit metrics will remain in line with the current rating, as reflected in (cash flow from operations [CFO] pre-working capital [pre-WC])/net debt and (CFO pre-WC + interest expense)/interest expense of around 20% and 3.5x, respectively, through 2023. These metrics take into consideration our assumption of continued progress in the construction of the Ituango hydro plant.

Factors that could lead to an upgrade

We could upgrade EPM's rating if it continues to make progress in constructing the Ituango plant, along with presenting a clear path for leverage reduction. Positive pressure on the BCA would increase if (CFO pre-WC)/net debt and (CFO pre-WC + interest expense)/ interest expense remain above 20% and 4.2x, respectively, on a sustained basis.

Factors that could lead to a downgrade

We would downgrade the rating if further incidents at Ituango cause additional environmental damage, third-party liability expense or permanent/irreversible damage to the project's infrastructure. Negative rating pressure would also arise if significant cost overruns, substantial delays or potential project cancellation keeps (CFO pre-WC)/net debt and (CFO pre-WC + interest expense)/interest expense below 17% and 3.0x, respectively. A decline in support from the City of Medellin would also constrain the rating.

Key indicators

Exhibit 2
Empresas Publicas de Medellin E.S.P.

	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23
CFO pre-WC + Interest / Interest	3.6x	3.8x	3.8x	4.4x	4.1x
(CFO Pre-W/C) / Net Debt	20.4%	19.9%	20.7%	27.7%	28.8%
RCF / Net Debt	12.8%	12.1%	16.2%	19.6%	23.4%

All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics™

Profile

Headquartered in Medellin, Colombia, Empresas Publicas de Medellin E.S.P. (EPM) is a multi-utility vertically integrated public service group. EPM is the parent company of a group comprising 46 companies and six structured entities. EPM provides public services in Colombia, Chile (A2 stable), El Salvador (Caa3 stable), Guatemala (Ba1 stable), Mexico (Baa2 stable) and Panama (Baa3 stable). The company offers its services through the following segments: power generation, distribution and transmission; natural gas distribution; water provision; wastewater treatment; and solid waste management. As of December 2023, 81% of EPM's EBITDA came from Colombia, while 82% came from businesses in the energy sector.

Other business segments include stakes in the telecommunications business, through UNE EPM Telecomunicaciones, S.A. and Inversiones Telco S.A.S. In October 2023, Millicom and EPM reached an agreement to jointly capitalize UNE EPM Telecomunicaciones S.A. (Tigo-UNE). Each party is set to contribute $71 million, making a total capital contribution of $142 million. This sum will primarily be directed towards developing Tigo-UNE's business strategy, which prioritizes the construction of digital highways in Colombia; expanding connectivity services to millions of users; and continuing to provide both direct and indirect employment to thousands of Colombians. With this agreement, both partners will retain their current shareholding in the company.

In 2020, EPM incorporated Afinia, which held around 12% of the Colombian market share in the distribution sector, thereby achieving a 35% share of Colombia's energy distribution and commercialization market, which is the maximum level allowed according to regulation. As of December 2023, EPM had COP77 billion in assets.

Detailed credit considerations

Strong likelihood of receiving support from the City of Medellin

EPM's Baa3 rating reflects the application of our JDA framework for government-related issuers. The City of Medellin is EPM's only shareholder. Our Government-Related Issuers Methodology takes into consideration the following inputs:

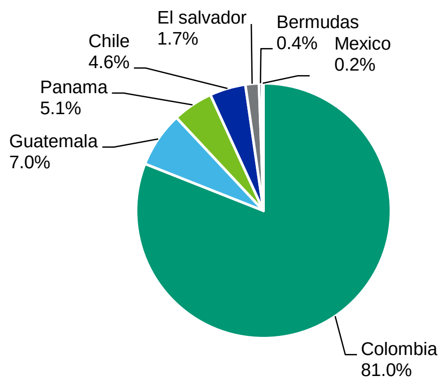
- strong probability of extraordinary support from Medellin if EPM faces financial distress
- our estimation of a very high level of default dependence between the company and the City of Medellin
- the City of Medellin's rating
- EPM's intrinsic credit profile as captured in its ba1 BCA

EPM is strategically important to the local economy. Its dividends have historically accounted for around 25% of the city's total revenue. EPM had a dividend payout ratio of 55% of net income, but the company plans to decrease it to 50% in 2024, 45% in 2025 and 40% afterwards, to have more cash flow available for potential growth opportunities. Our assumptions reflect our view that the city could decrease the dividend payout to support EPM in case of financial stress.

Diversified operations in terms of business segment and geography, with some concentration in Colombia and the power segment

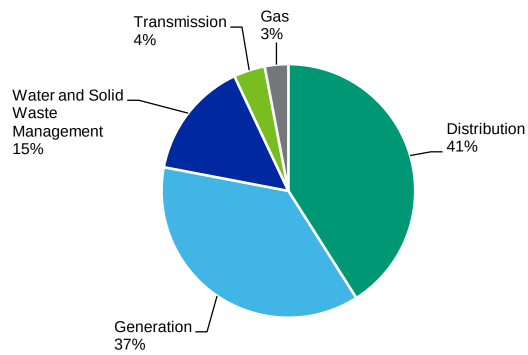
EPM has seven business segments in several countries in Latin America. We consider this diversification credit positive, despite some concentration in Colombia (accounting for more than 80% of EBITDA as of December 2023). EPM also has concentration in the power segment, with 45% of EBITDA as of December 2023 coming from the regulated business (41% distribution and 4% transmission) and 37% from the unregulated business corresponding to generation (see Exhibit 4). The contribution of the generation business to total EBITDA will increase as additional units at Ituango start operations.

Exhibit 3
Consolidated EBITDA by country as of 31 December 2023



Source: Company presentation

Exhibit 4
Consolidated EBITDA by business segment as of 31 December 2023



Source: Company presentation

EPM's power generation fleet consists of 41 operational generation plants, with installed capacity of 4,078 megawatts (MW), of which 37 are hydro, three are thermal and one is a wind farm, and almost all of the installed capacity is located in Colombia. EPM has a relevant participation in transmission and distribution in the Colombian market. Nonetheless, the high share of hydro in the overall portfolio exposes the company's cash flow to various water availability scenarios, mainly droughts, such as the current El Niño weather phenomenon that initiated around mid-2023. EPM's share of hydro will increase with the start of operations at more units of the Ituango hydro plant — the first two units (out of eight) started operations in November 2022. However, EPM has insurance against low hydrology, which mitigates the revenue loss from lower electricity generation.

Ituango is a strategic project for EPM and Colombia. Its completion will consolidate EPM's leadership in the energy generation sector with non-carbon-related sources. The project is estimated to account for 17% of the country's installed capacity, once fully operational. However, it will increase the company's EBITDA concentration in Colombia.

In the Colombian auction of non-conventional renewable energy on 26 October 2021, the Government of Colombia awarded EPM with 83 MW of solar energy from the Tepuy project, located in the Caldas department, which will benefit the company's diversification in terms of power generation.

In the electricity distribution business, EPM operates in Colombia, Panama, El Salvador and Guatemala, with market shares of 38.6%, 41.5%, 25.3% and 43.3%, respectively (as of 2022). The distribution sector accounted for about 41% of the company's total consolidated EBITDA as of December 2023, making it the most important contributor.

Lower uncertainties in the development of the Ituango hydro plant

The contingency that occurred at the Ituango hydroelectric project on 28 April 2018 triggered high uncertainty regarding the future of the project. But currently we have more visibility into EPM's plan to continue with its completion. EPM's first two turbines started operations in November 2022, as scheduled. Two additional turbines started operations by the end of 2023, and the rest are projected to operate in 2027. Each unit will generate 300 MW and the total installed capacity is 2,400 MW.

As of 31 December 2023, the project's construction was 92.56% completed. EPM does not expect new findings and requirements to generate significant costs in addition to those already incorporated in the budget. For the remaining units, there are no penalty in case of any delay; however, EPM aims to complete them per schedule to strengthen its generation footprint.

In January 2022, EPM received the last payment from the insurance companies related to the Ituango contingency. The company received $983 million from Mapfre Seguros Generales de Colombia S.A. (Mapfre) and COP426,000 million from other insurance companies.

On 27 October 2023, units 3 and 4 of Hidroituango became available to generate an additional 600 MW. Additionally, EPM received confirmation on 14 November of the inclusion of units 3 and 4 for energy generation in the All Risk Material Damage and Business Interruption insurance policy. This policy was contracted with the insurer La Previsora Seguros and an insured limit of $250 million.

Total capital spending for the Ituango project as of December 2023 was $21.1 billion, higher than the initial budget mainly as a result of updated market prices.

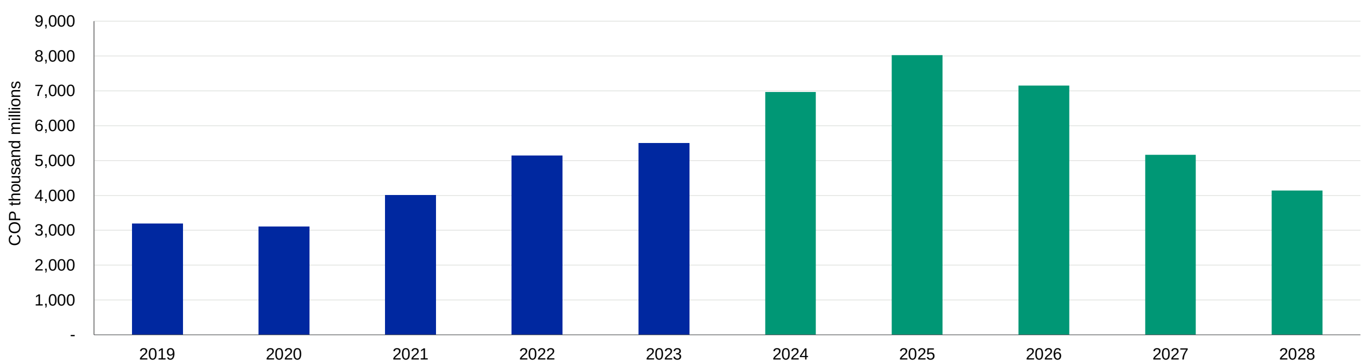
Significant capital spending program and adverse regulatory changes constrain financial metrics

EPM's financial metrics have been improving over the years. In 2023, (CFO pre-WC + interest)/interest expense was 4.1x, slightly down from the 4.4x recorded in 2022. Despite this decrease, the metric improved from the average of around 3.7x in 2019-21. Meanwhile, CFO pre-WC/net debt for 2023 was 28.8%, up from the 27.7% recorded in 2022. Stronger credit metrics reflect the distribution business' good performance because of the higher Producer Price Index (PPI) as well as power sales. Additionally, EPM received several insurance proceeds related to the Ituango contingency in 2022 (see the Liquidity section for more details).

Credit metrics will weaken slightly in 2024 because of the higher interest rate environment and the depreciation of the Colombian peso. This is particularly relevant because as of 31 December 2023, 31% of EPM's debt was denominated in foreign currency and exposed to variable interest rates (after hedges). Additionally, the recent tax reform in Colombia that increased the income tax burden for the country's hydropower generators will lead to an estimated impact of at least $5 million on the company's cash flow, and a maximum of $12 million in 2024, depending on regulatory decrees that will establish the final amounts (for more details, see Tax reform will hit hydropower cash flow but boost income for local governments, published on 16 December 2022).

We project (CFO pre-WC + interest)/interest expense will decline to around 3.5x in 2024 and 2025, while CFO pre-WC/net debt will remain at 23.8%-26.5% for the same period. These metrics incorporate the company's capital spending program of almost COP15 billion for the two years (see Exhibit 5), which will be concentrated mainly in the energy sector. While we expect EPM to partially finance investment with debt, most of it will be funded with cash flow and potentially some asset divestment.

Exhibit 5
Capital spending program for 2024-28 will exceed the investments in the past five years



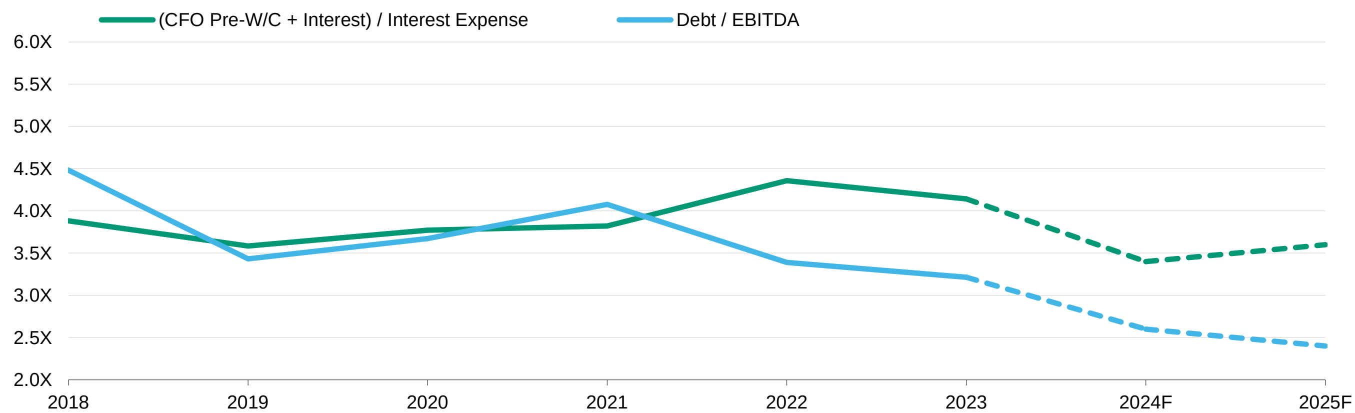
Sources: Moody's Financial Metrics™ and company presentation

Adverse regulatory changes would lead to a further deterioration in credit metrics. In October 2022, Colombia's energy regulator Comision de Regulación de Energía y Gas (CREG) announced that its proposed regulatory changes to lower electricity tariffs took effect in October-November 2022, and that key companies have reviewed and commented on the changes. CREG's measures to reduce energy prices for end consumers require power generation companies to lower prices, and transmission and distribution companies to apply the lower Consumer Price Index rather than the PPI and change the future indexation (until October 2023) using the lower of these two indexes.

The companies voluntarily adopted the changes that only applied temporarily from October-November 2022 to September-October 2023 for generation/transmission and distribution. We considered the changes credit negative for generation, transmission and distribution companies because their revenue and profit will decline during the transition period with no recovery of the earnings lost to the new regulation. For EPM, we estimated revenue impact at COP340,000 million (around $75 million), or less than 1.5% of its annual revenue, as a result of lower energy prices during the transition period. The company did not adhere to the changes in the indexation formulas for its transmission and distribution businesses (for more details, see Regulatory changes are credit negative for Colombia's electricity sector, published on 17 October 2022).

In May 2023, Empresas Públicas de Medellín E.S.P. board approved a temporary tariff adjustment from June to December 2023. The company expects the tariff reduction to benefit 7 million users (including companies) amid high inflation and affordability concerns. The measure will temporarily weaken EPM's revenue and cash interest coverage ratios. EPM estimates lost revenue from the tariff adjustment at COP150 billion-COP400 billion ($33 million-$88 million). Tariffs gradually decreased by 0.6% per month starting in June and until September. From October to December, tariffs were gradually increased to the original levels.

Exhibit 6
Cash interest coverage will remain stable, while debt/EBITDA will improve to about 3.0x in the next few years



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

ESG considerations

Empresas Publicas de Medellin E.S.P's ESG credit impact score is CIS-4

Exhibit 7
ESG credit impact score

ESG considerations have a discernible impact on the current rating, which is lower than it would have been if ESG risks did not exist. The negative impact of ESG considerations on the rating is higher than for an issuer scored CIS-3.

Source: Moody's Ratings

Empresas Publicas de Medellin E.S.P's (EPM) ESG Credit Impact Score (**CIS-4**) reflects high exposures to environmental and social risks. The effect of ESG risks to the rating is partially mitigated by the expectation that its government shareholder would support the company if necessary.

Exhibit 8
ESG issuer profile scores

Source: Moody's Ratings

Environmental

EPM's environmental risk score (**E-4** issuer profile score) reflects the company's exposure to physical climate risks on its 35 hydro generation plants that represent 87% of its installed capacity. While risks are partially mitigated by EPM's climate risk insurance policy, the company's cash flow and operating margin are exposed to seasonal rainfall and prolonged droughts that impact energy spot prices. EPM is also implementing measures to transition to net zero emissions by 2025.

Social

EPM's social issuer profile score (**S-4**) reflects the risk of adverse regulatory decisions or political interference due to tariff affordability concerns and environmental-social considerations. These risks, which are common to electricity companies operating in Latin America, are balanced by low exposures to health and safety, human capital, and customer relationships. EPM, in particular, faces relatively higher social risks as related to the Ituango in order to continue protecting the communities downstream of the hydroelectric project.

Governance

EPM's governance issuer profile score (**G-3**) captures corporate governance risks arising from political interference as EPM is strategically important to the local economy of the City of Medellin, which is the sole owner. On 2020, EPM announced that eight of the company's nine board members resigned after the mayor (the ninth board member) decided to pursue contractual reimbursement from the Engineering, Procurement and Construction (EPC) contractors and the insurance company for the cost overruns and lost profit of the Ituango hydro project, without submission to the board. However, EPM announced a plan in order to strengthen corporate governance during the 2022-2025 period.

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

EPM's strong cash flow generation, together with the collection of insurance proceeds related to the Ituango hydro project contingency, supports the company's strong liquidity. As of December 2023, EPM had cash and equivalents of COP3,244,472 million, an amount similar to the debt maturities coming due in 2024. For 2025 and 2026, the maturities are around COP1,105,000 million and COP3,295,000 million, respectively, a manageable amount compared with the amount held in cash at the end of last year.

On 25 January 2022, EPM received the last payment of $633.8 million from Mapfre related to the Ituango contingency. EPM had previously received $350 million ($150 million in December 2019, $100 million in September 2020 and $100 million in August 2021). These payments are for the damages and loss of profit (lucro cesante) coverage. In addition, Seguros SURA Colombia, AXA Colpatria and SBS Seguros Colombia S.A. paid COP426,000 million in December 2021 related to the insurance for management's fiscal responsibilities.

EPM's strong liquidity allowed the company to prepay the $450 million loan from the Inter-American Development Bank (IDB, Aaa stable) with cash available in December 2021. In addition, in December 2021, EPM prepaid a COP450,000 million loan from Bancolombia S.A. (Baa2 stable[1]) whose original maturity was in February 2022.

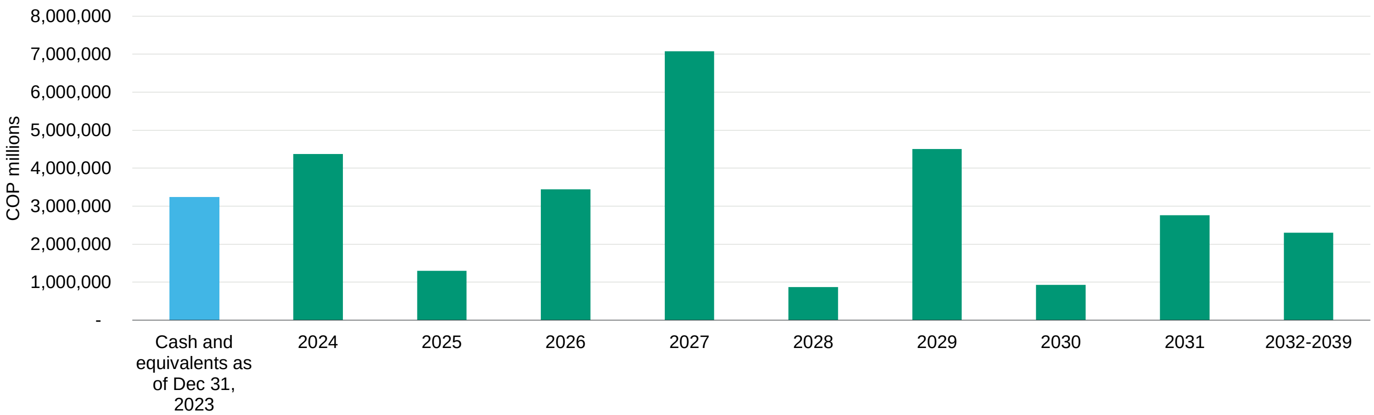
EPM is projected to maintain adequate liquidity, supported by its cash flow generation. Nonetheless, EPM will have continued access debt and bank markets to support its capital spending plan. It has three committed credit line facilities with Banco Nacional de

Desenvolvimento Econômico e Social - BNDES (Ba2 stable), with $111 million available ($6 million to be disbursed), a $700 million club deal ($400 million to be disbursed) and $189.8 million with Agence Française de Développement.

Exhibit 9

Cash and cash equivalents as of December 2023 were enough to cover 2024 debt maturities

Debt maturities as of December 2023



Sources: EPM presentation and EPM´s financial statements

Methodology and scorecard

We evaluate EPM's BCA using our Unregulated Utilities and Unregulated Power Companies rating methodology. EPM's current scorecard-indicated outcome is Baa3, one notch above the assigned ba1 BCA. The Baa3 assigned rating reflects the potential for extraordinary support from the City of Medellin, as the sole shareholder, according to our Government-Related Issuers Methodology.

Exhibit 10

Rating factors

Empresas Publicas de Medellin E.S.P.

Unregulated Utilities and Unregulated Power Companies Industry [1][2]	Current FY 12/31/2023		Moody's 12-18 Month Forward View As of 4/2/2024 [3]	
Factor 1 : Scale (10%)	**Measure**	**Score**	**Measure**	**Score**
a) Scale (USD Billion)	Baa	Baa	Baa	Baa
Factor 2 : Business Profile (40%)				
a) Market Diversification	Ba	Ba	Ba	Ba
b) Hedging and Integration Impact on Cash Flow Predictability	Baa	Baa	Baa	Baa
c) Market Framework & Positioning	Baa	Baa	Baa	Baa
d) Capital Requirements and Operational Performance	B	B	B	B
e) Business Mix Impact on Cash Flow Predictability	Baa	Baa	Baa	Baa
Factor 3 : Financial Policy (10%)				
a) Financial Policy	Baa	Baa	Baa	Baa
Factor 4 : Leverage and Coverage (40%)				
a) (CFO Pre-W/C + Interest) / Interest (3 Year Avg)	4.1x	Ba	3.7x	Ba
b) (CFO Pre-W/C) / Net Debt (3 Year Avg)	25.9%	Baa	26.3%	Baa
c) RCF / Net Debt (3 Year Avg)	19.9%	Baa	20.9%	Baa
Rating:				
a) Scorecard-Indicated Outcome		Baa3		Baa3
b) Actual Rating Assigned		Baa3		Baa3
Government-Related Issuer		**Factor**		
a) Baseline Credit Assessment		ba1		
b) Government Local Currency Rating		Baa2		
c) Default Dependence		Very High		
d) Support		Strong		
e) Actual Rating Assigned		Baa3		

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 12/31/2023.
[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Sources: Moody's Financial Metrics™ and Moody's Ratings forecasts

Appendix

Exhibit 11
Peer comparison
Empresas Publicas de Medellin E.S.P.

Empresas Publicas de Medellin E.S.P Baa3 stable			Enel Americas S.A. Baa2 stable			Enel Chile S.A. Baa2 stable			Cemig Geracao e Transmissao S.A. Ba2 stable			Centrais Eletricas Brasileiras SA-Eletrobras Ba2 stable		
FYE Dec-21	FYE Dec-22	FYE Dec-23	FYE Dec-21	FYE Dec-22	FYE Dec-23	FYE Dec-21	FYE Dec-22	FYE Dec-23	FYE Dec-21	FYE Dec-22	FYE Dec-23	FYE Dec-21	FYE Dec-22	FYE Dec-23
6,643	7,512	8,629	16,192	14,187	12,888	3,771	5,700	5,227	1,543	1,581	1,355	6,430	6,611	7,445
1,784	2,161	2,130	4,051	4,104	3,573	696	1,382	1,359	496	641	681	2,870	3,194	4,599
3.8x	4.4x	4.1x	5.0x	4.3x	4.0x	2.3x	4.7x	3.2x	2.6x	4.6x	5.8x	3.3x	1.7x	2.0x
18.4%	23.5%	26.1%	26.7%	31.2%	24.8%	4.1%	17.0%	10.5%	26.2%	44.4%	91.3%	14.7%	4.9%	10.3%
14.3%	16.7%	21.2%	19.7%	24.3%	20.3%	3.6%	17.1%	5.6%	4.3%	23.6%	28.8%	19.9%	7.9%	12.0%
3.8x	4.2x	3.7x	6.7x	4.6x	4.0x	3.8x	6.4x	5.9x	3.1x	5.5x	5.9x	4.6x	2.3x	2.2x

All figures and ratios are calculated using Moody's estimates and standard adjustments. FYE = Financial Year-End. LTM = Last 12 Months.
Source: Moody's Financial Metrics™

Exhibit 12
Moody's-adjusted cash flow metrics
Empresas Publicas de Medellin E.S.P.

In COP thousand millions	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23
As Adjusted					
EBITDA	**6,432**	**7,109**	**6,666**	**9,128**	**9,168**
FFO	**3,922**	**4,071**	**5,348**	**7,183**	**8,095**
- Div	1,393	1,593	1,450	2,023	1,844
RCF	**2,529**	**2,478**	**3,898**	**5,159**	**6,251**
FFO	3,922	4,071	5,348	7,183	8,095
+/- Other	108	7	(352)	103	(407)
CFO Pre-WC	**4,030**	**4,078**	**4,996**	**7,286**	**7,688**
+/- ΔWC	(876)	614	(1,214)	(2,861)	(3,917)
CFO	**3,154**	**4,692**	**3,782**	**4,425**	**3,772**
- Div	1,393	1,593	1,450	2,023	1,844
- Capex	3,196	3,110	4,012	5,141	5,506
FCF	**(1,435)**	**(10)**	**(1,680)**	**(2,740)**	**(3,579)**
Debt / EBITDA	3.4x	3.7x	4.1x	3.4x	3.2x
Revenue	17,785	19,327	24,832	31,728	37,139
Cost of Good Sold	10,551	12,193	15,538	19,260	23,272
Interest Expense	1,560	1,471	1,770	2,169	2,446
Net Income	2,835	3,729	2,532	3,558	3,063
Total Assets	54,479	63,398	67,125	75,174	76,988
Total Liabilities	31,599	37,641	40,161	46,016	47,266
Total Equity	22,880	25,757	26,964	29,157	29,722

All figures and ratios are calculated using Moody's estimates and standard adjustments.
Source: Moody's Financial Metrics™

Exhibit 13

Moody's-adjusted debt reconciliation

Empresas Publicas de Medellin E.S.P.

In COP thousand millions	FYE Dec-19	FYE Dec-20	FYE Dec-21	FYE Dec-22	FYE Dec-23
As Reported Debt	**21,339**	**25,316**	**26,540**	**30,414**	**28,773**
Pensions	730	780	654	529	701
Operating Leases	0	0	0	0	0
Moody's - Adjusted Debt	**22,069**	**26,097**	**27,193**	**30,943**	**29,473**

All figures and ratios calculated using Moody's estimates and standard adjustments. FYE = Financial year-end.
Source: Moody's Financial Metrics™

Ratings

Exhibit 14

Category	Moody's Rating
EMPRESAS PUBLICAS DE MEDELLIN E.S.P	
Outlook	Stable
Issuer Rating -Dom Curr	Baa3
Senior Unsecured	Baa3
PARENT: MEDELLIN, CITY OF	
Outlook	Stable
Issuer Rating	Baa2

Source: Moody's Ratings

Endnotes

1 Long Term Counterparty Risk Rating.

REPORT NUMBER 1404420

CLIENT SERVICES

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