CREDIT OPINION
30 May 2025

Update

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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.

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Empresas Publicas de Medellin E.S.P

Update to credit analysis

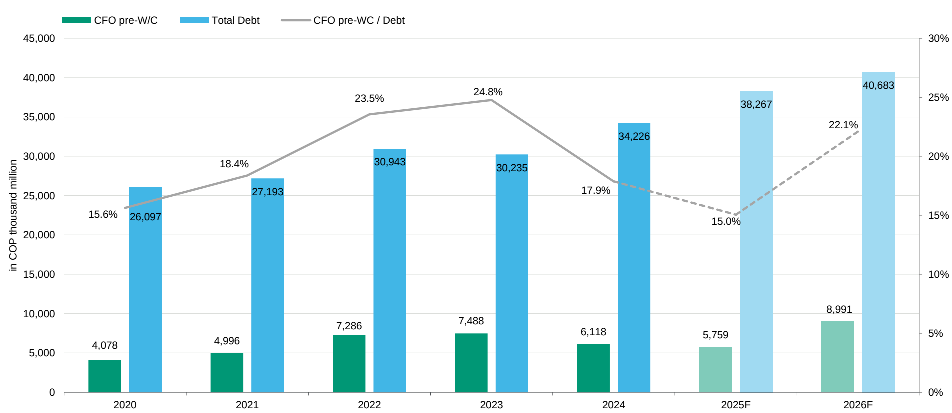
Summary

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 negative) as the support provider, incorporating our assumptions of very high dependence and strong extraordinary support in case of need. This results in a one-notch uplift from the company's ba1 Baseline Credit Assessment (BCA).

EPM's ba1 BCA reflects its large scale, presence in several countries and diversified operations. It also considers the progress around the development of the Ituango hydro plant, whose first four units are already in operations. Constraining the BCA are the track record of government interference aiming to decrease electricity tariffs in Colombia (Baa2 negative), its still large investments through 2026 and refinancing needs.

We expect credit metrics to slightly deteriorate in 2025 due to higher indebtedness to finance its capital spending program. It also considers the COP 1.2 trillion payment related to Hidroituango's contract compliance, which will be recorded as a movement in long-term accounts payable.

Exhibit 1
Historical CFO pre-WC, total debt, and CFO pre-WC/debt



All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Periods are fiscal year-end unless indicated.
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

» Successful start of operations of four turbines at the Ituango hydro plant

Credit challenges

» 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 the leverage ratio (cash flow from operations [CFO] pre-working capital [pre-WC])/net debt and interest coverage ratio (CFO pre-WC + interest expense)/interest expense of around 20% and 3.5x, respectively, through 2025-2026. 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 on its capital program keeps (CFO pre-WC)/net debt and (CFO pre-WC + interest expense)/interest expense below 17% and 3.0x, respectively, on a projected and sustained basis. 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.

	2020	2021	2022	2023	2024
CFO pre-WC + Interest / Interest	3.8x	3.8x	4.4x	4.0x	3.5x
(CFO Pre-W/C) / Net Debt	19.9%	20.7%	27.7%	27.3%	19.3%
RCF / Net Debt	12.1%	16.2%	19.6%	22.8%	20.3%

All ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Periods are fiscal year-end unless indicated.
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 (B3 stable), Guatemala (Ba1 stable), Mexico (Baa2 negative) and Panama (Baa3 negative). 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 2024, 83% 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.

Recent developments

On 20 May 2025, the Colombian national government paid almost COP2.5 trillion (approximately $630 million) to cover the subsidies on energy and gas to part of the population. This amount covers all the remaining subsidies from 2024. For EPM, it represented COP1.1 trillion ($242 million), of which COP508 billion ($124 million) was allocated to Caribemar de la Costa S.A.S. E.S.P. (AFINIA). In Colombia, there is a subsidy system that provides subsidies by strata for electricity and gas. The first three strata are eligible for these subsidies, which are covered by the resources of strata 5 and 6, as well as by the commercial and industrial sector. However, there was an accumulation of several months of subsidies that have not been paid by the government. The commercialization companies accumulate unpaid balances by the government in their balance sheets, leading to legal actions for collection. In AFINIA, the debt amount is higher because subsidies in that area are greater.

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:

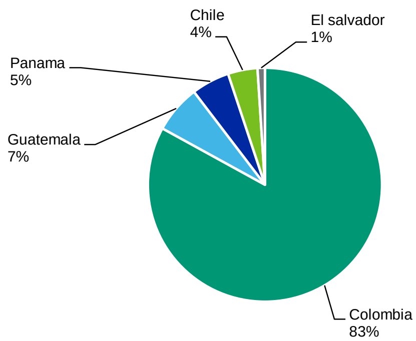
- Strong probability of extraordinary support from Medellin if EPM faces financial distress
- Our estimation of a very high level of default dependence between the company and the City of Medellin
- The City of Medellin's Baa2 rating
- EPM's intrinsic credit profile as captured in its ba1 BCA

EPM is strategically important to the local economy. Its dividends have historically accounted for around 25% of the Medellin's total revenue. EPM maintains a dividend payout ratio of 55% of net income. 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

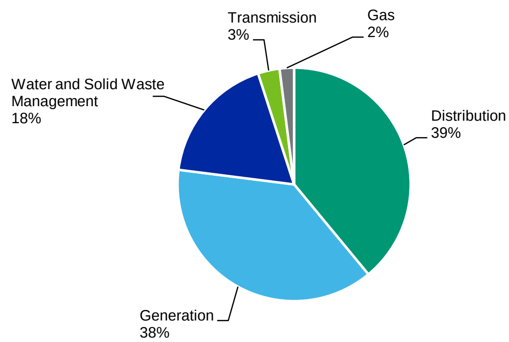
EPM has seven business segments in several countries in Latin America. We consider this diversification credit positive, despite some concentration in Colombia (accounting for around 83% of EBITDA as of December 2024). EPM also has concentration in the power segment, with 42% of EBITDA as of December 2024 coming from the regulated business (39% distribution and 3% transmission) and 38% 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 2024



Mexico and Bermuda contributed to consolidated EBITDA less than 1%.
Source: Company presentation

Exhibit 4
Consolidated EBITDA by business segment as of 31 December 2024



Source: Company presentation

EPM's power generation fleet consists of 41 operational generation plants, with installed capacity of 4,769 megawatts (MW), of which 37 are hydro, three are thermal and one is a solar plant, and almost all of the installed capacity is located in Colombia. EPM is a key operator in the Colombian power market; it is the main power generator and distributor, and ranks third in the power transmission business, with market shares of 23%, 39% and 8.09%, respectively. 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 recent El Niño weather phenomenon that started around mid-2023. EPM's share of hydro will increase with the start of operations of the remaining four units of the Ituango hydro plant — the first four units are already in operation with an installed capacity of 1,200 MW. 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 electricity distribution business, EPM operates in Colombia, Panama, El Salvador and Guatemala, with market shares of 39.3%, 39.7%, 27.1% and 43.6%, respectively (as of December 2024). The distribution sector accounted for about 42% of the company's total consolidated EBITDA as of September 2024, 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 in 2018 triggered high uncertainty regarding the future of the project. However, EPM's first two turbines started operations in November 2022, as scheduled. Two additional turbines started operations by year-end 2023, and the rest are projected to operate in 2027. EPM expects to complete them according to schedule to strengthen its generation footprint. Each unit will generate 300 MW and the total installed capacity is 2,400 MW.

As of February 2025, the project's construction was 93.4% completed. EPM does not expect new findings and requirements to generate significant costs in addition to those already incorporated in the budget. On 19 September 2024, EPM sealed the right diversion tunnel of Hidroituango, a structure that generated the emergency downstream of the dam on 12 May 2018. The underwater work has also concluded, enabling the rehabilitation of the hydraulic conditions of intake tunnels 2, 3 and 4, which channel water from the reservoir to the turbines for energy generation in the powerhouse.

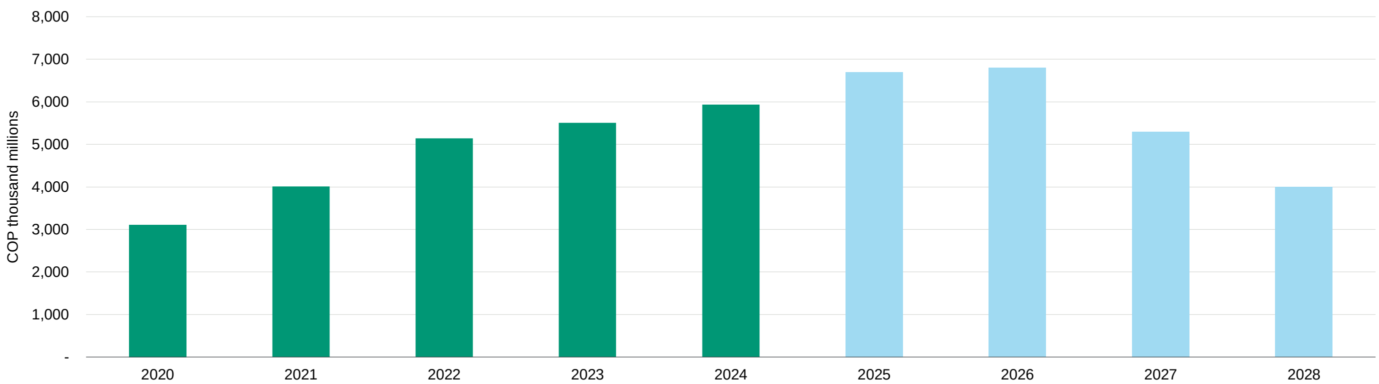
The company forecasts that it will spend COP2.5 trillion in 2025-27 to finalize of the construction of the Ituango plant, which represents 10.7% of the total capex for 2025-28.

Significant capital spending program and adverse regulatory changes constrain financial metrics

EPM's financial metrics have been strong over recent years, except for the deterioration in 2024 and for 2025. As of December 2024, (CFO pre-WC + interest)/interest expense was 3.5x, down from the 4.0x recorded in 2023. Meanwhile, CFO pre-WC/net debt for 2024 was 19.3%, down from the 27.3% recorded in 2023. Part of the deterioration is explained by the depreciation of the Colombian peso between 2023 and December 2024 and an increase of debt levels. Credit metrics were strong in previous years as a result of the distribution business' good performance because of the higher Producer Price Index (PPI) and power sales. Additionally, EPM received several insurance proceeds related to the Ituango contingency in 2022.

We project (CFO pre-WC + interest)/interest expense will decline to around 3.2x in 2025 and recover to 4.2x in 2026, while CFO pre-WC/net debt to 15.9% in 2025 and 23.6% in 2026. The likely deterioration in the 2025 metrics includes the COP 1.2 trillion payment related to Hidroituango's contract compliance, which will be recorded as an increase in long-term accounts payable. These metrics incorporate the company's capital spending program of almost COP23.3 trillion for 2025-28 (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 2025-28



Sources: Company presentation and Moody's Financial Metrics™

On 20 May 2025, the Colombian national government finally paid almost COP2.5 trillion (approximately $630 million) of past due receivables to cover the subsidies on energy and gas to part of the population. This amount covered all the remaining subsidies from 2024 and partially from 2025, supporting an improvement in the company's cash generation for 2025.

In 2024, EPM's commercialization companies started to recover through tariffs the amount by which the tariffs were lowered as a result of the "Opción tarifaria" (temporary discounts granted to low-income users). Collection of those subsidies proved to be more challenging than initially anticipated adding working capital pressures to the distribution business. With gradual increases in tariffs, EPM expects to fully recover this amount subsidies by 2026, while for Afinia the full recovery is expected only by 2029.

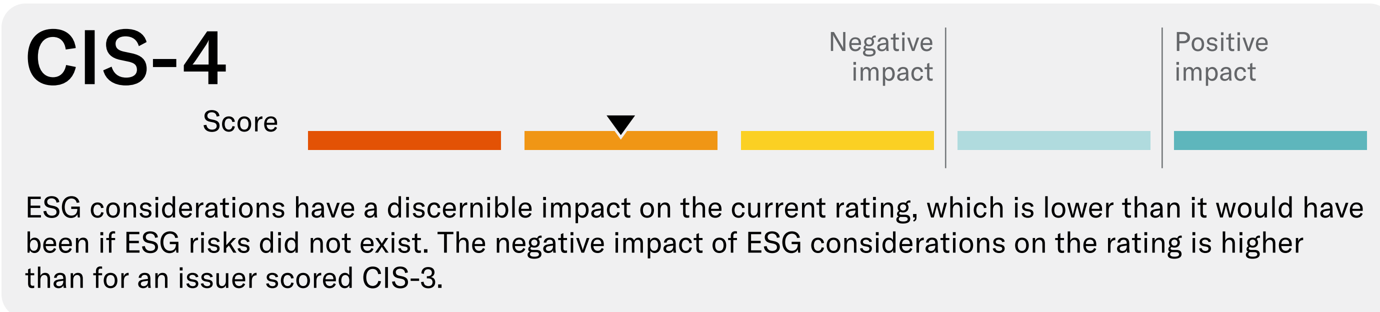
In October 2022, Colombia's energy regulator Comision de Regulación de Energía y Gas (CREG) announced that its proposed regulatory changes to lower electricity tariffs took effect in October-November 2022, and that key companies have reviewed and commented on the changes. CREG's measures to reduce energy 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. 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).

ESG considerations

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

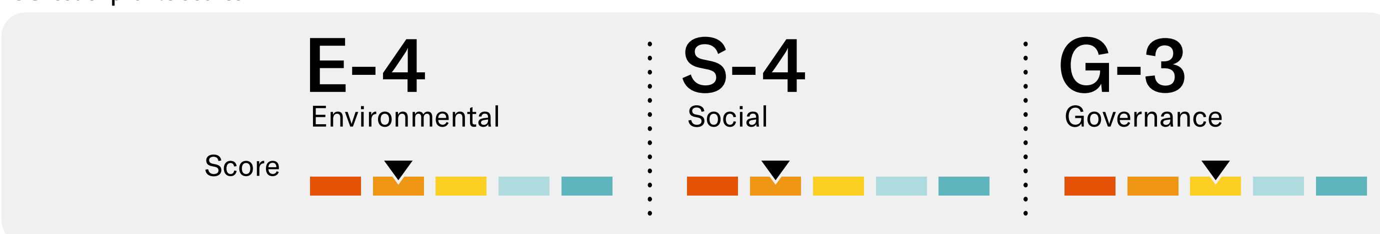
Exhibit 6
ESG credit impact score



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 7
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

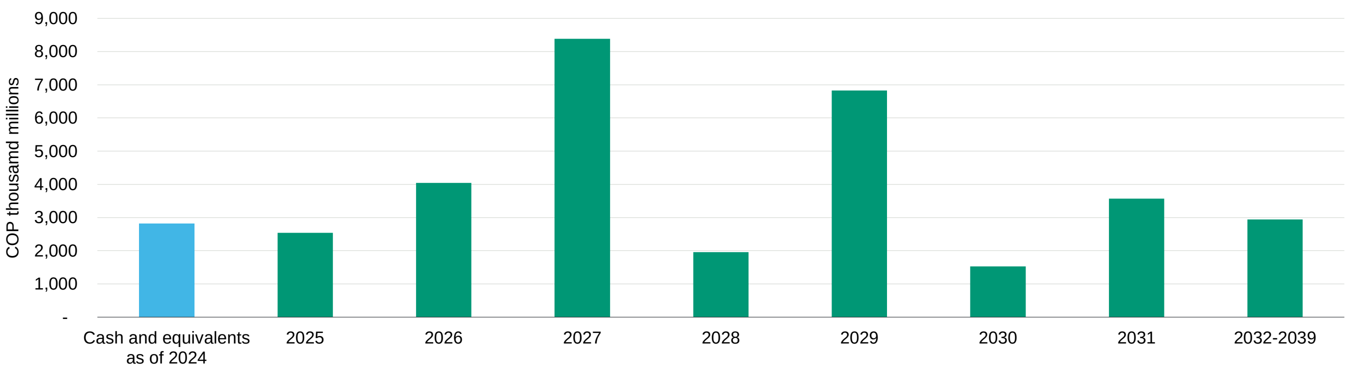
EPM currently has tight liquidity buffers vis-a-vis its debt maturity profile. As of December 2024, EPM reported COP2.8 trillion in cash and cash equivalents, an amount slightly higher than the debt maturities coming due in 2025. For 2026 and 2027, the maturities are around COP4.0 trillion and COP8.4 trillion, respectively. The international bond for COP4.5 trillion is the main debt maturity in 2027 for refinancing.

Supporting EPMs liquidity is its robust internal cash flow generation. Nonetheless, EPM will have to continue to access to debt and bank markets to refinance large debt maturities in 2027 and 2029 and other general purposes. To support its capital spending programs the company also relies on a syndicate loan with an available amount of $325 million.

Exhibit 8

Cash and cash equivalents as of December 2024 were enough to cover 2025 debt maturities

Debt maturities as of December 2024



Sources: Company presentation and Moody's Financial Metrics™

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 9

Rating factors

Empresas Publicas de Medellin E.S.P.

Unregulated Utilities and Unregulated Power Companies Industry Scorecard	Current FY Dec-24		Moody's 12-18 Month Forward View	
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)	3.9x	Ba	3.6x	Ba
b) (CFO Pre-W/C) / Net Debt (3 Year Avg)	24.4%	Baa	19.7%	Ba
c) RCF / Net Debt (3 Year Avg)	20.9%	Baa	16.7%	Baa
Rating:				
a) Scorecard-Indicated Outcome		Baa3		Baa3
b) Actual Rating Assigned				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		

All ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
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 10

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. Ba1 stable			Centrais Eletricas Brasileiras SA-Eletrobras Ba1 stable		
	FYE Dec-22	FYE Dec-23	FYE Dec-24	FYE Dec-23	FYE Dec-24	LTM Mar-25	FYE Dec-22	FYE Dec-23	FYE Dec-24	FYE Dec-22	FYE Dec-23	FYE Dec-24	FYE Dec-22	FYE Dec-23	FYE Dec-24
Revenue (in USD millions)	7,512	8,629	9,746	12,888	13,904	13,810	5,700	5,227	4,228	1,581	1,355	1,139	6,611	7,445	7,489
EBITDA (in USD millions)	2,161	2,113	2,727	3,573	3,550	3,388	1,382	1,359	808	641	681	756	3,194	4,542	5,090
CFO pre-WC + Interest / Interest	4.4x	4.0x	3.5x	4.2x	3.0x	2.5x	4.8x	4.0x	6.4x	4.6x	5.8x	5.5x	1.7x	2.1x	2.2x
CFO pre-WC / Debt	23.5%	24.8%	17.9%	26.8%	30.7%	21.1%	17.6%	14.5%	30.1%	44.1%	91.1%	116.7%	4.9%	10.9%	10.1%
RCF / Debt	16.7%	20.7%	18.8%	20.3%	28.6%	21.4%	13.6%	5.6%	16.9%	23.4%	31.1%	-148.9%	7.9%	12.7%	12.4%
EBITDA / Interest Expense	4.2x	3.7x	4.5x	4.0x	3.6x	3.5x	6.4x	5.9x	3.5x	5.5x	5.9x	10.8x	2.3x	2.1x	2.6x

All figures and ratios are based on adjusted financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. LTM = Last 12 months.
Source: Moody's Financial Metrics™

Exhibit 11

Moody's-adjusted cash flow metrics

Empresas Publicas de Medellin E.S.P.

in COP thousand million	2020	2021	2022	2023	2024
As Adjusted					
EBITDA	**7,109**	**6,666**	**9,128**	**9,094**	**11,087**
FFO	**4,071**	**5,348**	**7,183**	**8,095**	**8,636**
- Div	1,593	1,450	2,023	1,844	2,187
RCF	**2,478**	**3,898**	**5,159**	**6,251**	**6,448**
FFO	4,071	5,348	7,183	8,095	8,636
+/- Other	7	(352)	103	(607)	(2,517)
CFO Pre-WC	**4,078**	**4,996**	**7,286**	**7,488**	**6,118**
+/- ΔWC	614	(1,214)	(2,861)	(3,764)	(184)
CFO	**4,692**	**3,782**	**4,425**	**3,724**	**5,935**
- Div	1,593	1,450	2,023	1,844	2,187
- Capex	3,110	4,012	5,141	5,507	5,931
FCF	**(10)**	**(1,680)**	**(2,740)**	**(3,627)**	**(2,184)**
Debt / EBITDA	3.7x	4.1x	3.4x	3.3x	3.1x
Revenue	19,327	24,832	31,728	37,139	39,618
Cost of Good Sold	12,193	15,538	19,260	23,345	24,942
Interest Expense	1,471	1,770	2,169	2,457	2,485
Net Income	3,729	2,532	3,558	3,056	4,889
Total Assets	63,398	67,125	75,174	76,988	83,439
Total Liabilities	37,641	40,161	46,016	47,266	51,007
Total Equity	25,757	26,964	29,157	29,722	32,432

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

Exhibit 12

Moody's-adjusted debt reconciliation

Empresas Publicas de Medellin E.S.P.

in COP thousand million	2020	2021	2022	2023	2024
As Reported Debt	**25,316**	**26,540**	**30,414**	**28,773**	**32,929**
Pensions	780	654	529	1,462	1,297
Moody's - Adjusted Debt	**26,097**	**27,193**	**30,943**	**30,235**	**34,226**

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

Ratings

Exhibit 13

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

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