

CREDIT OPINION

31 July 2020

Update

✓ Rate this Research

RATINGS

Ecopetrol S.A.

Domicile	Bogota, Distrito Capital, 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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Ecopetrol S.A.

Annual update to credit analysis

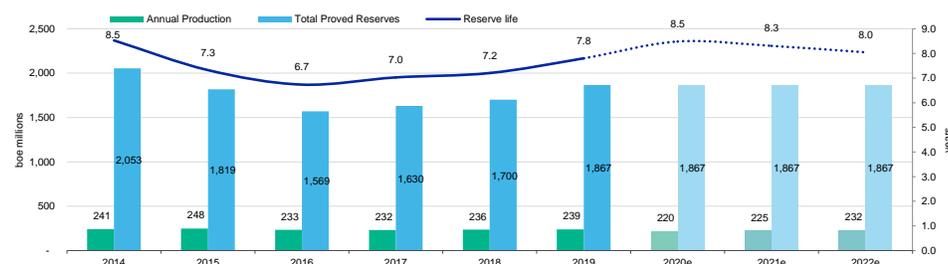
Summary

[Ecopetrol S.A.](#)'s (Baa3 stable) credit profile reflects the company's status as Colombia's leading oil and gas producer, accounting for about two-thirds of the country's production and 100% of the supply of oil products. It also takes into consideration Ecopetrol's sizable production scale as well as its solid and relatively stable cash flow from its midstream subsidiary, Cenit S.A.S., which includes [Oleoducto Central S.A.](#) (Ocensa, Baa3 stable). Furthermore, we assume a high probability of support from the [Government of Colombia](#) (Baa2 stable) for Ecopetrol and a moderate default interdependence between the two issuers. This assessment results in a one-notch uplift to Ecopetrol's senior unsecured rating to Baa3 from its ba1 BCA, which reflects the company's intrinsic credit risk without support considerations.

Exhibit 1

Ecopetrol's reserve life will decline in 2021-22 but will remain at a comfortable level over eight years

Production and reserve life evolution



Conversion rate of 6,000 cubic feet = 1 barrel of oil equivalent.

Sources: Ecopetrol and Moody's Investors Service (estimates)

Credit strengths

- » Leading oil and gas producer, accounting for about two-thirds of Colombia's production; only provider for refined products in the country
- » Sizable production scale
- » Portfolio of valuable assets that can be relatively easily monetized, including Ocesa
- » Assumption of high support from the Government of Colombia

Credit challenges

- » Still-high exploration and production (E&P) operating costs, although in line with regional peers
- » Execution risks arising from its reserve replacement strategy
- » Stagnant production at around 2019 levels

Rating outlook

The stable rating outlook is based on our view that Ecopetrol will be able to strengthen its credit metrics again as prices and volumes improve in 2H20-21, maintaining the reserve replacement rate and sustaining reserve life at the current levels at least.

Factors that could lead to an upgrade

- » Ecopetrol demonstrating an ability to grow production and replace reserves without negatively affecting its credit metrics
- » Leveraged full-cycle ratio above 1.5x, which would indicate low finding and development costs
- » Retained cash flow (RCF)/net debt sustained at above 40%

Factors that could lead to a downgrade

- » Liquidity constraints
- » Significant downward trend in reserve life
- » RCF/net debt below 20% with limited prospects for a quick turnaround
- » Any material adverse consequences for the company's operating or financial risk profile from the Reficar investigations
- » A negative action on the Colombian government's rating or outlook, or a change in our assumptions for government support

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody's.com for the most updated credit rating action information and rating history.

Key indicators

Exhibit 2

Ecopetrol S.A.

US Millions	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19	LTM (Mar-20)	2020E	2021E	2022E
Average Daily Production (MBOE / Day)	680.4	636.6	635.6	646.6	655.7	657.0	603	616	636
Total Proved Reserves (MMBOE)	1,818.8	1,569.3	1,630.3	1,700.3	1,867.3	1,867.3	1,867	1,867	1,867
Crude Distillation Capacity (mbbls/day)	420.0	405.0	405.0	404.8	404.8	404.8	405	405	405
Downstream EBIT/Total Throughput Barrels	\$3.26	\$0.48	\$0.79	\$0.56	\$1.54	\$1.54	\$2	\$2	\$2
EBIT / Interest Expense	4.0x	3.3x	5.6x	8.7x	10.1x	8.8x	3x	6x	7x
RCF / Net Debt	15.8%	23.5%	41.0%	53.4%	28.4%	19.1%	7%	34%	38%
Debt / Book Capitalization	52.4%	54.1%	47.9%	40.8%	41.1%	46.6%	47%	42%	38%
EBIT / Avg. Book Capitalization	10.78%	10.32%	15.09%	24.18%	22.54%	20.13%	9%	15%	17%

All figures and ratios are calculated using Moody's estimates and standard adjustments. Moody's Forecasts (f) or Projections (proj.) are Moody's opinion and do not represent the views of the issuer. Periods are Financial Year-End unless indicated.

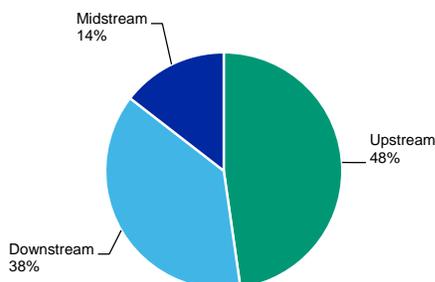
Source: Moody's Financial Metrics™

Profile

Ecopetrol S.A. (Ecopetrol) is the largest integrated oil and gas company in Colombia. The company has three business segments, namely exploration and production, refining activities and transportation and logistics. Its production averaged 657 thousand barrels of oil equivalent per day (mboe/d), net of royalties, in the 12 months ended March 2020, and total assets amounted to \$36 billion. The Colombian government owns 88.5% of the company through shares held by the Ministry of Finance, and the balance is trading on the Colombian Securities Exchange since November 2007. Ecopetrol's ADRs are listed on the New York Stock Exchange since 2008; its market capitalization as of mid-July 2020 was \$23.7 billion.

Exhibit 3

Revenue breakdown by business segment

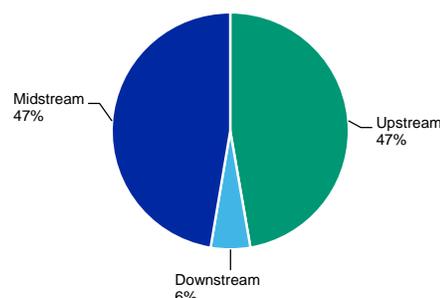


Data as of March 2020. Numbers do not include eliminations.

Source: Ecopetrol

Exhibit 4

EBITDA breakdown by business segment



Data as of March 2020.

Source: Ecopetrol

Detailed credit considerations

Leading upstream and downstream positions in Colombia

Ecopetrol is the leading oil and gas producer in Colombia, accounting for over 60% of the country's oil and gas reserves; its crude production accounts for around 80% of its total production in December 2019, with close to 1.9 billion boe of proved reserves in the same period, according to its 20-F published in April 2020. The company estimates average gross production of 700 mboe/d for 2020-21. In addition to selling its own production, Ecopetrol purchases and trades the government's royalty crude, its own natural gas royalties, as well as a portion of third-party production in Colombia. Ecopetrol is a medium-sized integrated oil company relative to its larger government-owned peers in Latin America.

In downstream, Ecopetrol owns all of the country's 405,000 barrels per day (bpd) of crude refining capacity through four refineries. About 98% of Ecopetrol's production comes from two refineries: the Barrancabermeja refinery, responsible for 250,000 bpd, and Reficar at Cartagena, which has a 150,000 bpd capacity. Ecopetrol is the largest wholesale marketer in Colombia, with a virtually 100% market share, but does not engage in retail product marketing. In 2016, Ecopetrol completed the upgrade of its Reficar refinery and expanded its capacity by 65,000 bpd to a total distillation capacity of 150,000 bpd, which brought Ecopetrol's total distillation capacity to 405,000 bpd. The upgrade moved Reficar's Nelson complexity index to 10.5 from 5.1, allowing for lower feedstock cost and better product slate, which improved its overall efficiency. Ecopetrol is also Colombia's largest petrochemical producer, with 470,000 tons of annual polypropylene capacity.

The company indirectly owns and operates directly or in joint ventures around 9,000 kilometers of crude oil and refined product pipelines, equivalent to 82% of Colombian pipeline capacity, including 100% or majority stakes in four of the largest crude pipelines, which connect field production to the refineries and to wholesale product and export terminals. Ocesa is a stable source of cash flow for Ecopetrol and provide a liquidity buffer as tariffs are for the most part set in US dollars.

Stable level of reserves amid lower crude prices

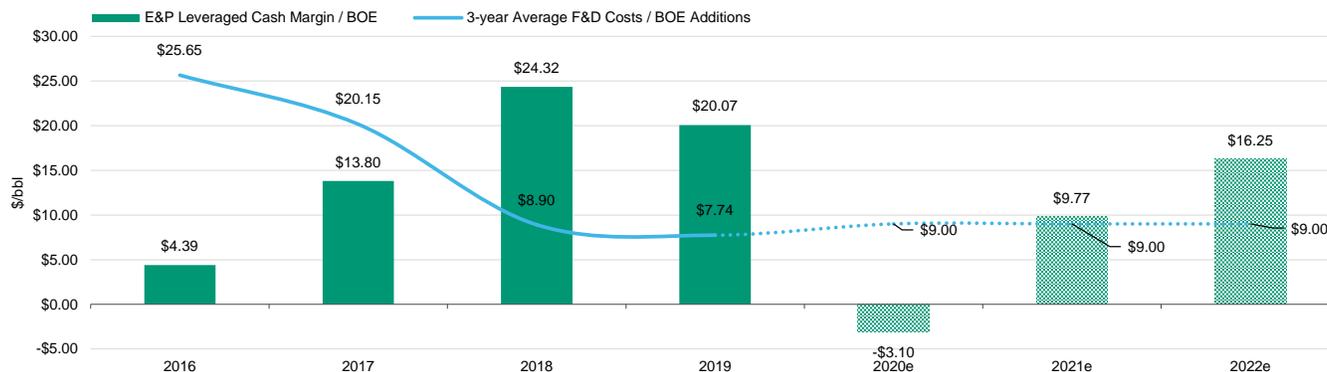
Ecopetrol's production growth rate has been relatively low and stable since 2016 and we expect this trend to continue in the next 12-18 months. During the supply and demand shock in the first half of 2020, to protect its liquidity Ecopetrol reduced its capital spending plan by 45% from its original budget announced in early 2020. This strategy is in line with the measures taken in 2016 when the company cut its capital spending by 67% compared with that in 2015. For 2020, the company plans to invest \$3 billion to \$3.4 billion in capital; estimates for 2021-22 are still pending, although Ecopetrol has aimed to reach at least a 100% oil and gas reserve replacement rate in recent years. In 2020, close to 80% of its total capital spending will be allocated to E&P.

In the past, capital investment cuts negatively affected production growth. Production declined by 6% in 2016 to 637 mboe/d (net of royalties), despite the incorporation of the Rubiales field's 50 mboe in mid-year 2016; in 2017-18, production remained stable averaging 641 mboe/d, slightly increasing to 655 mboe/d in December 2019 and 657 mboe/d in March 2020 as a result of an increase in upstream investments in 2019 and select associations with international oil companies. We expect an 8% decline in production in 2020 but an around 3% production increase for 2021-22. Ecopetrol's production is spread among various regions within Colombia, which somewhat helps protect the business against guerrilla attacks, common in the country, because the company could adjust production in its portfolio of assets in the event of disruptions.

From 2016 to 2019, higher oil prices, combined with better operating and capital efficiency, have helped Ecopetrol improve its credit metrics and cash flow. We believe that the company will be able to maintain its current reserve life at around eight years through a solid reserve replacement strategy and that its credit metrics will remain strong in the foreseeable future. The company plans to continue entering into associations with large technically capable companies, which will help optimize its enhanced recovery processes and reduce costs; invest in small and medium-sized onshore assets that can add reserves at competitive costs; develop unconventional fields, especially in the Magdalena basin, in association with third parties; and grow inorganically outside Colombia, primarily in projects in the US, Mexico and Brazil, in joint ventures with experienced partners.

Exhibit 5

Sharp decline in oil prices in 2020 would hurt Ecopetrol's metrics, but we believe they will return to the 2019 levels in 2021-22 Leveraged cash margin and Finding and Development cost evolution



Sources: Ecopetrol and Moody's Investors Service (estimates)

Lower oil prices will hurt free cash flow (FCF) generation and we expect weaker credit metrics

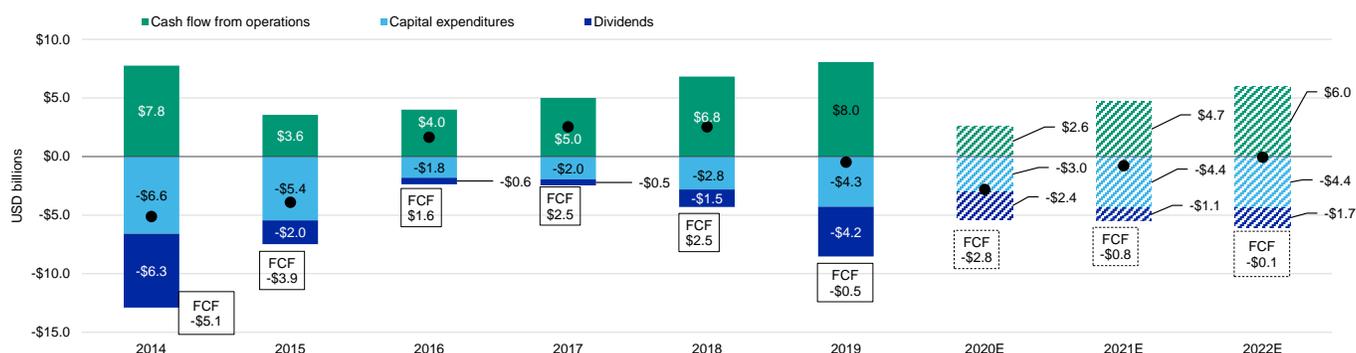
In 2016-19, higher oil prices, combined with better operating and capital efficiency, have helped Ecopetrol improve its credit metrics and cash flow from 2015 levels. Lower capital investments in 2016 aimed at protecting liquidity resulted in positive adjusted FCF of \$1.6 billion in the year, which was favorable compared with negative \$3.9 billion in 2015. Better market fundamentals and disciplined capital investment helped Ecopetrol improve FCF generation further in 2017-18 to \$2.5 billion per year. In 2019, as a result of lower prices and higher capital investments, Ecopetrol generated negative \$467 million in FCF.

In 2020, we estimate that Ecopetrol's FCF will be negative in around \$2.8 billion as a result of lower prices and volumes, consequence of the supply shock related to geopolitical issues among global oil and gas producers as well as the demand shock originated by the coronavirus pandemic. However, we believe that Ecopetrol will post much lower negative FCF in 2021-22 as prices and production increase and the company continues to lower operating costs. Favorable results from the midstream business, which benefits from high capacity utilization and adequate tariffs, will continue to support cash generation.

During the oil prices debacle, in 2014-16, the Government of Colombia released pressure from Ecopetrol to pay dividends. Now that prices have somewhat improved from the low levels during the first half of 2020, and liquidity risk has declined, the dividend payout ratio will be close to 60% of net profit before impairments, as per the company's guidance. Ecopetrol will delay some 86% of its dividend payment to the state until later in 2020, having paid out 14% of its capital as mandatory annual dividends in April, largely to public shareholders. We believe the government could also allow Ecopetrol to keep its cash if liquidity becomes a bigger concern, just as it did in 2016.

Despite negative FCF in 2019-22, we do not expect a significant deterioration in Ecopetrol's credit metrics given the strength of its balance sheet.

Exhibit 6
Cash flow evolution



All figures and ratios are calculated using Moody's estimates and standard adjustments. Moody's forecasts are Moody's opinion and do not represent the views of the issuer.

Sources: Moody's Financial Metrics™ and Moody's Investors Service (estimates)

Increasing debt in 2020 but stable leverage over the medium term

Recently, Ecopetrol strengthened its liquidity by borrowing \$1.1 billion from credit facilities, of which \$665 million were from committed revolvers, and issuing \$2.0 billion in notes in April 2020. As a consequence, Ecopetrol's adjusted gross debt leverage will most probably be over 3x as of year-end 2020, which compares with its internal maximum limit of 2.5x-3.0x. However, we expect the company's leverage to decline again in 2021 based on higher volumes and prices. Our view about Ecopetrol's leverage is based on Brent prices of \$35/bbl in 2020, \$45/bbl in 2021 and \$45-\$65/bbl in the medium term.

Exhibit 7
Leverage evolution



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Sources: Moody's Financial Metrics™ and Moody's Investors Service (estimates)

Ongoing investigations at Reficar

Certain former executives of Ecopetrol and Reficar, as well as other individuals, are under investigations by the Colombian Office of the Comptroller General, the Attorney General's Office and the Prosecutor's Office on possible overpayments and wrongdoings regarding the upgrade and expansion of Ecopetrol's Cartagena refinery, Reficar.

In connection with the ongoing investigations, Ecopetrol has retained a US-based law firm to perform a third-party investigation into the matters set forth by the Prosecutor's Office. We will watch closely any developments arising from the investigations around cost overruns in Reficar's expansion and the potential consequences for the company's liquidity and operations. However, we believe that the company's access to capital markets is unlikely to be materially affected as a result. Since 2014, Ecopetrol has impaired about \$1.8 billion in assets. In addition, the company has been under investigation for a number of years now, with no material adverse findings regarding its internal controls or corporate governance practices so far.

Environmental, Social and Governance considerations

The rapid spread of the coronavirus outbreak, the deteriorating global economic outlook, low oil prices and high asset price volatility have created an unprecedented credit shock across a range of sectors and regions. We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety.

Ecopetrol aims to prevent, control, mitigate and compensate the potential environmental impacts of operations and projects to contribute to the improvement of the environmental quality of the territories where it operates and to support sustainable development. Through environmental management, the company seeks to have the required permits and authorizations for its works, projects and activities, and follow up on their strict compliance.

Ecopetrol's management has the objective to contribute to the growth in economic value by creating sustainable development conditions, allowing the consolidation of operations and the viability of projects. Ecopetrol plans to invest close to \$500 million in environmental and social initiatives up to 2024, such as operational efficiency in water management, energy efficiency program and efficient use of resources, and ensure sustainable development in the territories where it operates.

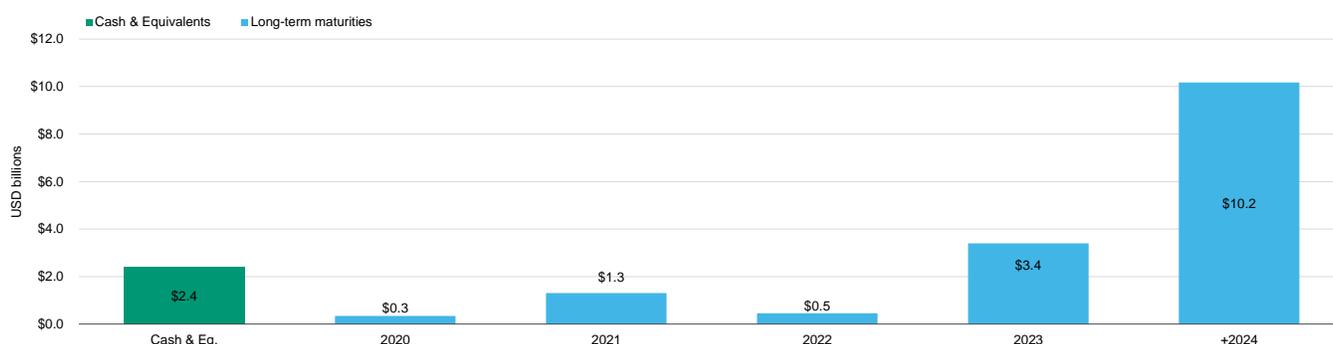
Ecopetrol's board of directors consists of nine members, of which eight are independent. Moreover, the company has several committees in place to support the board's duties. Ecopetrol is a public company, 88.49% owned by the Government of Colombia, with its shares trading on the New York Stock Exchange and the Colombian Stock Exchange. The company has to comply with local and international regulations in terms of compliance and reporting.

Liquidity analysis

Ecopetrol's liquidity is adequate. Its cash and equivalents of \$2.4 billion as of March 2020, in addition to around \$1.1 billion raised from credit facilities, of which \$665 million were from committed revolvers, and \$2 billion in bonds, as well as cash flow from operations of \$6 billion, as per our estimates, through December 2021, compared favorably with \$340 million of debt maturing in the remainder of 2020 and \$1.3 billion in 2021, of which \$500 million are related to Ocesa's bonds, which have been already pre-refinanced. We estimate working cash needs of around \$800 million, interest expense payments close to \$1 billion and capital investments of about \$6 billion until December 2021.

Exhibit 8

Debt maturity profile



Cash & equivalents as of March 2020.

Source: Ecopetrol

Methodology and scorecard

The forward-looking scorecard-indicated outcome for factors 1-5 is Baa2, compared with Ecopetrol's ba1 BCA and Baa3 global scale rating. The Government Policy Factor — which is an indicator of the financial risk associated with government taxation and financial dependence on the company — adds two notches to the scorecard-indicated rating and changes the outcome for the 12-18-month forward view to Ba1.

Exhibit 9

Rating factors

Ecopetrol S.A.

	Current LTM 3/31/2020		Moody's 12-18 Month Forward View As of July 2020	
Integrated Oil and Gas Industry	Measure	Score	Measure	Score
Factor 1 : Scale (20%)				
a) Average Daily Production (Mboe / d)	657	A	616	A
b) Proved Reserves (MMboe)	1,867	Baa	1,867	Baa
c) Crude Distillation Capacity (Mbbls / d)	405	Ba	405	Ba
Factor 2 : Business Profile (25%)				
a) Business Profile	Baa	Baa	Baa	Baa
Factor 3 : Profitability and Efficiency (10%)				
a) EBIT / Average Book Capitalization	20.1%	Aa	15%	Baa
b) Downstream EBIT / Total Throughput Barrels (\$ / bbl)	\$1.4	B	\$2	B
Factor 4 : Leverage and Coverage (25%)				
a) EBIT / Interest Expense	8.8x	A	6x	Baa
b) RCF / Net Debt	19.1%	Ba	34%	A
c) Total Debt / Book Capitalization	46.6%	Baa	42%	Baa
Factor 5 : Financial Policy (20%)				
a) Financial Policy	Ba	Ba	Ba	Ba
Rating:				
Scorecard-Indicated Outcome from Factors 1-5		Baa3		Baa2
Notching Factor: Government Policy Framework		2		2
a) Scorecard-Indicated Outcome After Notching Factor		Ba2		Ba1
b) Actual rating assigned		Baa3		Baa3
Government-Related Issuer				
	Factor			
a) Baseline Credit Assessment	ba1			
b) Government Local Currency Rating	Baa2			
c) Default Dependence	Moderate			
d) Support	Moderate			
e) Actual Rating Assigned	Baa3			

All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations. Moody's forward view does not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.

Source: Moody's Financial Metrics™

Ratings

Exhibit 10

<u>Category</u>	<u>Moody's Rating</u>
ECOPETROL S.A.	
Outlook	Stable
Issuer Rating - Dom Curr	Baa3
Senior Unsecured	Baa3
OLEODUCTO CENTRAL S.A.	
Outlook	Stable
Senior Unsecured	Baa3

Source: Moody's Investors Service

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