

**Credit Opinion: Ecopetrol S.A.**

Global Credit Research - 21 Dec 2012

Bogota, Colombia

**Ratings**

| Category                | Moody's Rating |
|-------------------------|----------------|
| Outlook                 | Stable         |
| Issuer Rating -Dom Curr | Baa2           |
| Senior Unsecured        | Baa2           |

**Contacts**

| Analyst                         | Phone        |
|---------------------------------|--------------|
| Thomas S. Coleman/New York City | 212.553.0365 |
| Steven Wood/New York City       | 212.553.0591 |

**Key Indicators**

| Ecopetrol S.A.[1]                  | 9/30/2012(L) | 12/31/2011 | 12/31/2010 | 12/31/2009 | 12/31/2008 |
|------------------------------------|--------------|------------|------------|------------|------------|
| EBIT / Book Capitalization         | 40.5%        | 40.9%      | 25.4%      | 22.8%      | 51.7%      |
| EBIT / Interest Expense            | 30.9x        | 35.8x      | 21.9x      | 27.7x      | 222.9x     |
| Retained Cash Flow / Net Debt      | 202.5%       | 542.5%     | 131.6%     | -1.7%      | -1093.4%   |
| Gross Debt / Total Capital         | 19.3%        | 13.8%      | 20.2%      | 19.4%      | 3.5%       |
| Gross Debt / Total Proved Reserves | \$4.06       | \$2.66     | \$3.25     | \$2.58     | \$0.50     |
| Total Proved Reserve Life (Yrs)    | 8.0          | 8.3        | 9.0        | 9.6        | 8.3        |

[1] All ratios are calculated using Moody's Standard Adjustments. Source: Moody's Financial Metrics

Note: For definitions of Moody's most common ratio terms please see the accompanying [User's Guide](#).

**Opinion**

**Rating Drivers**

- Leading integrated energy company in Colombia
- Growing production and reserves profile
- Rising costs but strong full cycle economics
- Aggressive capital program with execution risk
- Increasing leverage profile
- Government-related issuer and political risk concerns

**Issuer Profile**

Ecopetrol S.A. (Ecopetrol) is the state oil company and largest corporation in Colombia, involved in the exploration, production, refining, transportation, and marketing of crude oil and natural gas. Following an IPO in 2007 and a

second round share offering in August 2011, the government owns 88.5% of the company through shares held by the Ministry of Finance.

### **Rating Rationale**

Ecopetrol's Baa2 global local currency issuer rating (GLCR) reflects its status as Colombia's leading oil and gas producer and position as a mid-sized integrated oil company, as well as its growing production, reserves and crude oil export profile. A rising level of upstream and infrastructure investment under its Mega plan is leading to increased hydrocarbon production, primarily in heavy oil, and to the expansion of refining and transportation infrastructure to deliver growing oil and gas production to market. Rising production and stronger oil-based cash margins are supporting strong cash flows with moderate debt increases. However, the ratings also factor in the staging and execution risks of its ambitious growth strategy and expectations for a rising leverage profile under the Mega plan.

Ecopetrol's Baa2 rating derives one notch of uplift under joint-default analysis based on a high level of government support and moderate default correlation. Underlying the Baa2 GLCR is baseline credit assessment (BCA) of baa3.

### **DETAILED RATING CONSIDERATIONS**

#### **LEADING UPSTREAM & DOWNSTREAM POSITION IN COLOMBIA**

Ecopetrol is the leading oil and gas producer in Colombia, accounting for approximately 59% of the country's BOE reserves and 66% of its current BOE production. With 1.86 billion BOEs of net proved reserves as of year-end 2011 (75% liquids) and production of approximately 750 MBOE/day (gross before royalties including affiliates) in the first nine months of 2012, Ecopetrol ranks as a mid-sized integrated oil company relative to its larger state oil company peers. In addition to selling its own production, Ecopetrol purchases and trades the government's royalty crude and a portion of the natural gas that are paid in kind, as well as a portion of third-party production in Colombia.

In the downstream, Ecopetrol owns all of the country's 330,000 barrels per day (bpd) of crude refining capacity through the 250,000 bpd inland refinery at Barrancabermeja and a smaller 80,000 bpd plant at Cartagena. The company produced approximately 292 Mbd of refined product in the first nine months of 2012 and is the largest wholesale marketer in the Colombia, but does not engage in retail product marketing.

Ecopetrol is also Colombia's largest petrochemical producer, with 500,000 tons per annum of capacity, mainly in polypropylene. It also owns and operates directly or in joint ventures more than 8,400 kilometers of crude oil and refined product pipelines, 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.

#### **GROWING RESERVES AND PRODUCTION PROFILE**

Ecopetrol derives its production from six main geographic regions, but most of its production comes from the Central and Eastern regions of Colombia. Its production has shown rapid growth since 2008, mainly in the Llanos Basin in central Colombia from the Castilla, Rubiales/Quifa, and Chichimene fields, all heavy crude fields. The Northeast region is the principal source of light crude production from the Cusiana and Cupiagua fields. These fields, which have been a mainstay and are in decline, remain an important source of Ecopetrol's natural gas production. Other significant crude production comes from the Mid-Magdalena with medium grade crude, and the Catatumbo/Orinoquia regions, the latter in the eastern provinces along the border with Venezuela.

Ecopetrol was targeting an 8% production growth for 2012. However, due to some permitting delays and transportation/infrastructure limitations, gross production for the first nine months averaged around 4% and is expected to exit the year with closer to 7% production growth. Close to 84% of its production is crude oil, with a rising share of heavy oil, which makes up about 51% of total crude production. The Castilla, Chichimene (Ecopetrol operator) and Rubiales/Quifa fields (operated by partner Pacific Rubiales) contribute about 40% of total crude production and are expected to be the major drivers of production growth in the near-term.

#### **RISING COSTS BUT STRONG FULL CYCLE ECONOMICS**

With a significant increase heavy oil exploration and development, Ecopetrol is showing an improving reserve profile and strong full cycle economics. The company's three-year average reserve replacement in 2011 was 221%, reflecting both upward revisions and discoveries.

Upward revisions and discoveries have come primarily from the Rubiales, Chichimene, and other fields, including upward revisions in 2010 from Chuchupa and older Cusiana and Cupiagua fields. Despite a rising production level, its reserve life has increased since 2008 to 8.5 years total and 5.7 years proved developed at September 30, 2012. At the same time, proved undeveloped reserves have declined from 43% in 2008 to about 30% of total reserves, based on year-end 2011 reserves.

Ecopetrol's upstream cost structure has increased, but higher oil prices and crude realizations tied to Brent are supporting stronger cash margins, and its unit costs are very competitive, with total full cycle costs of \$44.99 in 2011 and up again in the last twelve months ending in September 2012 to \$44.53/BOE. Ecopetrol's unit production costs have declined in line with higher production, despite higher well maintenance and workovers, wastewater treatment costs, and appreciation of the Peso. As a result, Ecopetrol's leveraged full cycle ratio was a strong 5.92X in 2011 and 6.3X in LTM September 2012. (Our cost structure analysis is based on a gas/oil conversion ratio of 6:1, with production reported net of royalties, whereas most of the company's reported information is based on gross production before royalties.)

Unleveraged cash margin for the last twelve months ending in September 30, 2012 was estimated at \$69.89/BOE. The company's three-year all-sources F&D costs averaged \$10.10/BOE in 2011, benefiting from large upward revisions on heavy oil reserves as well as discoveries, while one-year F&D costs increased to \$15.86/BOE.

#### CAPITAL RAMP UP FOR MEGA PROGRAM

Ecopetrol has ramped up capital spending significantly since 2008 to fund its Mega plan, which is expected keep spending at elevated levels totaling \$80 billion through 2020 to increase crude oil and gas production, support infrastructure expansion, and refining upgrades. The Mega plan sets an ambitious capital program estimated at \$44 billion for 2011-2015 (averaging about \$8.86 billion p.a.), and an additional \$35.9 billion from 2016 to 2020.

Spending from 2011 to 2015 includes \$34 billion in the upstream to raise production to 1 million BOE/day by 2015, with further expansion to 1.3 million BOE/day by 2020. In the midstream, infrastructure spending will remain elevated as Ecopetrol and its partners expand pipeline takeaway and storage capacity, particularly to meet rising production from the Llanos Basin. The goal is to increase crude pipeline takeaway capacity and to grow compression capacity to 1.8 million bpd in 2016. In the near term, the largest project is the \$1.03 billion first phase of the Bicentenario pipeline, with 120,000 bpd connecting the Llanos Basin to the port of Covenas.

In the downstream, the two refineries are smaller scale with relatively low conversion capabilities. The company is planning investment of \$7.4 billion to upgrade the Barrancabermeja refinery and double throughput capacity at Cartagena from a current 80,000 bpd to 165,000 bpd by 2015, while increasing conversion to handle a heavier domestic crude slate (from 20% currently to 60%) and produce clean fuels.

Ecopetrol spent \$3.7 billion on its capex budget in the first nine months of 2012 and expects to spend close to \$9.5 billion in 2013 (Ecopetrol S.A. plus its subsidiaries). About 62% of the budget will be directed to higher exploration and development spending in Colombia. Infrastructure spending will also continue to be elevated, consuming \$3.5 billion in 2013, or about 36% of the budget, for Phase 1 of the Bicentenario pipeline project and for other pipeline investments, as well as for refining projects.

#### INCREASING LEVERAGE PROFILE

Ecopetrol's modest leverage position is a legacy of its status as a state company and the government's intention to strongly capitalize it post-IPO to support acquisitions and future growth. Despite higher capital spending, strong oil prices and production growth have resulted in rising cash flows and modest leverage increases. While the company has been outspending cash flow in the first nine months of 2012, it has been able to fund rising capital needs by drawing on its large cash and investment reserves.

Our view of Ecopetrol incorporates rising financial leverage over the next two to three years as spending for the Mega plan is expected to exceed internal cash flow. In addition, a high statutory dividend payout will compete with funds needed for reinvestment.

We do not expect leverage increases to affect Ecopetrol's ratings, given its relatively modest debt balances and strong liquidity. The company's leverage metrics are competitive compared to its peers, with adjusted Debt/Total Proved Reserves of \$4.06/BOE and Debt/Proved Developed Reserves of \$6.06/BOE as of September 30, 2012 (proforma using 2011 reserve data). Debt/Average Daily Production rose to about \$11,800/BOE. Ecopetrol also has access to equity and will realize the proceeds from any future share issues until state ownership falls to 80%, as was the case in August 2011 when the company issued \$1.3 billion of equity.

## GOVERNMENT SUPPORT PROVIDES RATINGS UPLIFT

Ecopetrol's Baa2 global local currency issuer rating reflects ratings uplift based on Moody's joint default rating methodology for government related issuers (GRIs). For Ecopetrol we assume a high level of government support, given its financial contribution to the government, strategic importance, and reputation risk. We view default correlation between the two entities as moderate, resulting in uplift in the local currency rating to Baa2.

The Baa2 foreign currency bond rating is one notch above the Colombia's foreign currency rating, which was raised to Baa3 in 2011, reflecting a view of moderate risk of a general debt moratorium and a lower probability that Ecopetrol would be subject to a payment moratorium. Ecopetrol's exports are rising in tandem with higher production, with about 58% of its crude oil sales volumes exported in the 2012, mainly to the US, Asian markets, and the Caribbean basin.

## POLITICAL RISK CONCERNS

Colombia has witnessed a widespread decline in guerilla activity since the early 2000 period but along with Ecopetrol and the oil industry in general remains subject to periodic guerilla activity, including pipeline and compression station bombings and kidnappings, as well as agitation in areas such as the eastern provinces along the border of Venezuela. However, President Juan Manuel Santos is a former defense minister and has stepped-up protection of energy infrastructure such as the pipelines, as well as social programs to gain the support of local populations. He is also negotiating with the FARC to try to end the insurgency. Other risks include labor disruptions and access to new areas for future exploration and development, which will require soliciting the support and participation of indigenous peoples.

## Liquidity

Ecopetrol has a solid liquidity position, including \$5.0 billion of cash and short-term investments as of September 30, 2012. This cash could be drawn down in 2013 as a result of higher spending. The company has access to international bond markets, drawings under a \$1 billion US Export Import Bank facility, or local Peso bonds. The debt maturity profile is manageable, with COP\$444.884 million due in 2013.

## Rating Outlook

The outlook for both the Baa2 foreign currency and Baa2 GLCR is stable, with good flexibility to sustain expectations of higher capital spending and debt increases.

## What Could Change the Rating - Up

Despite higher spending and potential debt increases, Ecopetrol could be upgraded in the medium term as it continues to grow production and execute on the Mega plan while s maintaining moderate financial leverage.

## What Could Change the Rating - Down

The BCA and ratings could be pressured if debt increases materially beyond expectations or if production growth significantly underperforms. The ratings could also be pressured if we viewed the government likelihood of support for Ecopetrol to be weaker.

## Other Considerations

Comment on Grid Implied Rating: Using the Global Integrated Oil Rating Methodology, the implied rating of A2, before notching for government fiscal dependence, versus our BCA baa3. The methodology outcome benefits from solid scale positioning and the company's strong positioning and cash margins as primarily an oil producer. The forward look is slightly weaker based on expected debt increases and the drawdown of cash resources as the company finances the Mega plan.

## Rating Factors

Ecopetrol S.A.  
600011139

Integrated Oil & Gas [1][2]

LTM as of  
09/30/2012

[3]Moody's 12-18 Month  
Forward View

| Factor 1: Reserves & Production Characteristics (25%)     | Measure | Score | Score |
|---|---------|-------|-------|
| a) Average Daily Production (Mboe/d)                      | 626.6   | A     | A     |
| b) Proved Reserves (Million boe)                          | 1832.4  | Baa   | Baa   |
| c) Total Proved Reserve Life (Yrs)                        | 8.0     | Baa   | Baa   |
| <b>Factor 2: Re-Investment Risk (10%)</b>                 |         |       |       |
| a) 3-Year All-Sources Reserve Replacement                 | 221%    | Aaa   | Aa    |
| b) 3-Year All-Sources F&D Cost (\$/boe)                   | \$10.1  | Aa    | A     |
| <b>Factor 3: Operating &amp; Capital Efficiency (10%)</b> |         |       |       |
| a) Return on Capital Employed (ROCE) (3 Year Avg)         | 28.8%   | Aa    | Aaa   |
| b) Leveraged Full-Cycle Ratio                             | 6.3x    | Aaa   | Aa    |
| <b>Factor 4: Downstream Rating Factors (15%)</b>          |         |       |       |
| a) Total Crude Distillation Capacity ('000 bpd)           | 335.0   | Ba    | Ba    |
| b) # of Refineries with Capacity > 100 M bpd              | 1.0     | B     | B     |
| c) Segment ROCE (3 Year Avg)                              | 7.8%    | Ba    | Ba    |
| <b>Factor 5: Financial Metrics (40%)</b>                  |         |       |       |
| a) Retained Cash Flow / Net Debt (3 Year Avg)             | 191.3%  | Aaa   | Aa    |
| b) EBIT / Interest Expense (3 Year Avg)                   | 30.2x   | Aaa   | Aaa   |
| c) Gross Debt / Total Proved Reserves                     | \$4.1   | Aa    | A     |
| d) Gross Debt / Total Capital                             | 19.3%   | Aaa   | Aaa   |
| <b>Rating:</b>  |         |       |       |
| Indicated Rating from Grid Factors 1-5                    |         | A1    | A2    |
| Notching for Government Fiscal Dependence                 |         | 2     | 2     |
| Indicated Rating from Grid                                |         | A3    | Baa1  |
| Actual Baseline Assigned                                  |         | baa3  |       |

| Government-Related Issuer           | Factor          |
|-------------------------------------|-----------------|
| a) Baseline Credit Assessment       | <b>baa3</b>     |
| b) Government Local Currency Rating | <b>Baa3</b>     |
| c) Default Dependence               | <b>Moderate</b> |
| d) Support                          | <b>High</b>     |
| Final Rating Outcome                | <b>Baa2</b>     |

[1] All ratios are calculated using Moody's Standard Adjustments. [2] Based on financial data as of 9/30/2012; Source: Moody's Financial Metrics [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



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