Hydrocarbon Production Update: Colombia, Brazil, Mexico and Venezuela

By Miranda Wainberg*

Oil and gas production trends have varied widely among Latin American countries over the five year period 2005 through 2009. See Figures 1 & 2. Colombia and Brazil have registered positive production growth while Argentina, Mexico and Venezuela are continuing to struggle with production declines in oil, natural gas or both. These varied results are linked to the "commercial frameworks" for hydrocarbon sector investment in each country, e.g., the policies and regulations associated with hydrocarbon sector organization and governance; national oil company organization and governance; fiscal regime design and regulatory practices and quality.[1]

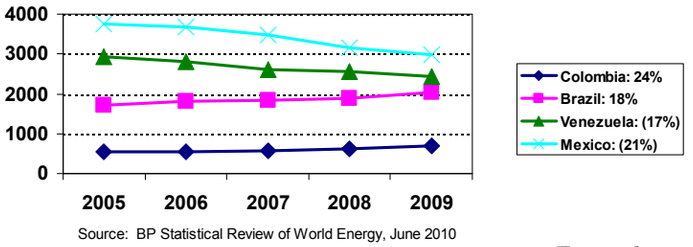

Figure 1
Oil Production (1000 barrels/day)

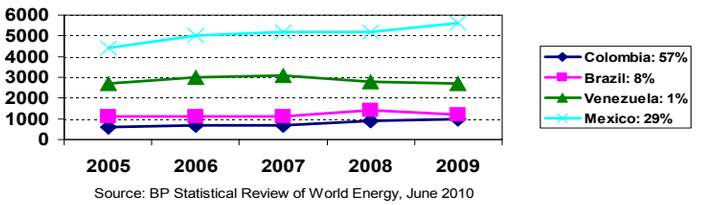

Figure 2
Gas Production (MMCF/day)

Colombia: Positive Transformation

In 2003 foreign direct investment in Colombia's hydrocarbon sector had dropped to about $300 million from $1.4 billion in 2000;[2] production and reserves continued to decline and Colombia was in danger of losing its self-sufficiency in oil production as well as its oil exporting status. The hydrocarbon sector was plagued by continuing guerilla attacks. Only 15 percent of the country's sedimentary basins had been explored.

By the end of 2009, Colombia saw its oil and gas production grow by 24% and 57%, respectively, from 2005 to 2009.[3] In 2008, 86 companies were operating in Colombia's hydrocarbon sector and foreign direct investment in the sector grew from US$278 million in 2003 to US$3.4 billion in 2008.[4] Capital expenditures by Colombia's national oil company, Ecopetrol, increased from US$617 million in 2004 to close to US$3 billion in 2008.[5]

What occasioned this remarkable turnaround? In 2003 the Colombian government embarked on a major restructuring of its hydrocarbon sector commercial frameworks, particularly in the areas of sector organization and public governance; corporate governance of Ecopetrol; fiscal regime redesign and regulatory regime redesign.

An independent upstream regulatory agency, the National Hydrocarbons Agency (ANH), was created to manage exploration bidding rounds and associated contracts. Private companies were no longer required to partner with Ecopetrol and Ecopetrol had to compete with private companies in ANH exploration bidding rounds. The fiscal regime was revised and made Colombia one of the most attractive hydrocarbon investment areas in Latin America in terms of prospectivity and contractual terms.[6] With the assistance of the military, the Colombian government made significant improvements in hydrocarbon sector security.[7]

Ecopetrol was transformed from a wholly state-owned entity to a mixed economy company, which incorporates private capital of 10% of the total.[8] The company's commercial focus was sharpened with the transfer of regulatory responsibilities to the ANH. As a mixed economy company, Ecopetrol was allowed to separate its investment budget from Colombia's national investment budget and national limits on its debt issuance were removed. The Colombian government assumed responsibility for refunding to refiners gasoline and diesel price subsidies, relieving Ecopetrol of about a US$10 billion burden annually.

Challenges remain for Colombia and Ecopetrol, especially in the areas of reserve replacement, regional hydrocarbon revenue management, security in frontier areas and the timely refund of price subsidies. Nevertheless, the transformation begun in 2003, if it continues, could serve as an example for other governments and national oil companies.

Brazil: Strong Performer Facing Challenges

Brazil is currently the third largest oil producer in Latin America, behind Mexico and Venezuela. Brazil has made strong gains in oil production and, to a lesser extent, in natural gas production, in contrast to the declining BOE production

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See footnotes at end of text.

experienced by Mexico and Venezuela from 2005 to 2009. The country's oil production exceeded consumption in 2009 and Brazil is expected to assume export status for both oil and natural gas as its huge pre-salt fields undergo development and exploitation.

However, Brazil and its national oil company, Petrobras, have not always been significant oil and gas producers. In the early 1990s, Petrobras, in addition to lackluster upstream performance, faced significant financial difficulties and became increasingly reliant on funding from Brazil's already overburdened treasury for its exploration and production program.[9] As a result, in 1995 the Brazilian government introduced major reforms in the areas of hydrocarbon sector organization and governance; Petrobras corporate organization and governance; fiscal regimes and regulatory structures. The 1995 reforms provided the initial platform that would propel Brazil's and Petrobras' strong oil and gas production and reserve growth going forward and served as an example for other countries, most notably Colombia.

Brazil's 1995 hydrocarbon sector reforms included: (1) the loss of Petrobras' hydrocarbon sector monopoly and the introduction of private company competition into all sectors, including the politically sensitive upstream; (2) the establishment of an independent upstream regulatory agency, the ANP, to manage exploration bidding rounds and associated contracts, relieving Petrobras of these non-commercial responsibilities; (3) removal of the requirement for private companies to partner with Petrobras in exploration, and (4) the partial privatization of Petrobras to increase access to international capital markets for investment funds and to subject the company to increased market scrutiny and discipline, thereby compelling improved management performance. Brazilian government voting ownership of the company was reduced from 82 percent to 56 percent.

Today Petrobras is an integrated oil and gas company that is the largest corporation in Brazil and one of the largest companies in Latin America in terms of revenues. It is active in 23 countries with a focus on Latin America. The company is internationally renowned for its innovation and expertise in deep and ultra-deep water exploration and production.[10]

However, Brazil and Petrobras are not without significant challenges and substantial business, execution and financial risks going forward. Pre-salt exploration and development is unknown, technologically complex and very expensive. Petrobras will have to manage a ramp up in capital expenditures and activity of a magnitude it has not had to deal with previously in an environment where it may face services and human resources shortages. As a result of the pre-salt discoveries, the Brazilian government is implementing major changes to the country's hydrocarbon sector organization and governance, some of which are reversing parts of the 1995 reforms and are increasing government influence in the sector.[11] These changes could increase the complexity and uncertainty of Petrobras' and Brazil's future operating environment and could make Brazil's hydrocarbon sector less attractive to private capital.

Mexico: At a Crossroads

In 2004, Mexico ranked third in crude oil production. By 2009 the country had fallen to seventh place. Oil production declined 21% from 2005 to 2009. Although natural gas production increased 29% from 2005 to 2009, Mexico has continued to be a net natural gas importer since 1999.[12] The declining oil and gas production performance of Mexico and its national oil company, Pemex, is linked to the country's commercial frameworks relating primarily to hydrocarbon sector organization and governance; Pemex corporate organization and governance and the fiscal regime for Pemex.

Mexico's hydrocarbon sector organization and governance has had a strong impact on recent Pemex production performance. Since 1938 the Mexican Constitution has granted a monopoly to Pemex with respect to oil and gas exploration and production. As a result, private companies and non-Mexican national oil companies are prohibited from undertaking exploration and production activities in Mexico on an equity basis.[13] This constitutional provision has shielded Pemex from competitive pressures that typically impel improvements in a company's operating practices. In addition, it has deprived Pemex of access to advanced technologies and world class management practices through partnerships and/or joint ventures with third parties in Mexico.[14] As Pemex moves to increasingly complex geologies and frontier areas like the deep water Gulf of Mexico in order to reverse declining production, this lack of access to world class technologies and management practices becomes a serious obstacle to success.

With respect to Pemex's organization, the company is a 100% state-owned "decentralized entity" of the Mexican government instead of an independent commercial entity. As such, the company has historically been managed as a government bureaucracy subject to standard government agency operating practices in areas such as procurement of goods and services that have been burdensome and inappropriate for an oil and gas company. In addition, Pemex's annual capital budget is part of Mexico's national budget and must be approved by the Mexican Congress. The company must compete with other social

and economic programs for funding and the level of approved funding historically has led to underinvestment in oil and gas activities, contributing to the recent production declines. Historically the corporate governance of Pemex has been opaque and highly politicized thereby blurring management accountability for results. Multiple government agencies are involved in approving certain Pemex activities and the President of Mexico appoints ten of the fifteen members of the Board of Directors, historically other cabinet officials, as well as the Director General of Pemex.

Pemex has been subjected to an onerous fiscal regime which has led to underinvestment in oil and gas exploration and production, contributing to recent production declines. The Mexican government relies on taxes and dividends paid by Pemex for about 40% of its public revenue and in some years the company has paid up to 90% of its pre-tax profit in taxes and dividends. The company's free cash flow is not sufficient to fund its capital program and, as a result, its debt level has soared. Pemex's access to international debt markets is increasingly predicated on presumed "extraordinary support" by the Mexican government if a crisis should occur.[15]

The Mexican government has tried to address some of these issues in the past without changing the constitution or the basic organization of the hydrocarbon sector and Pemex, most notably the multiple service contract structure for non-associated gas exploration by third parties and intermittent tax relief for Pemex. After seven grueling months of debate the latest reform package was finalized in fall 2008. This package consisted of a number of laws and revisions geared toward facilitating PEMEX investment, gradually integrating some modicum of upstream competition through a restructured service contract, and providing some upstream oversight through the new National Hydrocarbons Commission (CNH). The reforms also targeted improved corporate governance of Pemex through the appointment of independent directors; improving Board of Directors oversight of key operating and financial areas; relieving the company of inappropriate government procurement practices and offering Pemex "citizen's bonds" to Mexican citizens in an effort to subject the company to some level of market discipline. The reform also included a special tax regime with lower tax rates and higher limits on permitted deductions for Chicontepec and deep water prospects. Key questions relative to the effort reform are:[16]

- Will the 2008 energy reform prevent the rapid decline in oil production?
- Can the new model service contracts for exploration and production attract the interest of international oil companies, non-Mexican national oil companies or other private companies?
- Will this new legal framework for the oil industry and the participation of new regulatory agencies facilitate the introduction of further and deeper reforms in the future?

Venezuela: Major Hurdles

Venezuela has the Western Hemisphere's largest conventional proven oil reserves at 172 billion barrels as of year-end 2009. Much of Venezuela's resource endowment consists of substantial extra-heavy crude oil and bitumen deposits, most of which are situated in the Orinoco Belt located in Central Venezuela. Despite its exceptional resource endowment, Venezuelan oil production declined 17% from 2005 to 2009 and natural gas production remained essentially flat. The declining oil production performance of Venezuela and its national oil company, PdVSA, is linked to changes the President Chavez administration has made in hydrocarbon sector organization and governance; PdVSA corporate organization and governance; fiscal regime design and regulatory quality.

In 2005 a new Organic Hydrocarbons Law was enacted in Venezuela which required private companies operating under service agreements contracted with PdVSA in the 1990s to transition to new partnerships with PdVSA pursuant to terms that increased PdVSA's equity interest and operational control in the projects and increased the government's share of the projects' profits. All the private companies except ConocoPhillips and Exxon Mobil transitioned to the new partnership arrangements.[17] In addition, tax rates on oil projects were raised four times since 2004 for oil projects. As a result, although most private investors already in Venezuela remained in Venezuela, the changes in hydrocarbon sector organization and the fiscal regime discouraged new investments and new investors, contributing to the decline in oil production. Venezuela ranked third highest in the Fraser Institute 2009 Global Petroleum Survey for the number of negative factors serving as a deterrent to upstream investment.

The President Chavez regime also made significant changes in PdVSA organization, governance and regulation. PdVSA was once a model for other national oil companies with respect to value creation, managerial and technical competence, commercial relationships and partnerships and government noninterference in commercial matters. In 2003 PdVSA was restructured and 18,300 employees, close to 25 percent of its workforce, primarily those with top management and engineering capabilities, were fired. PdVSA's operations are now more closely supervised by Venezuela's Ministry of Energy and Petroleum

and the Minister now serves as the President of PdVSA. The members of the Board of Directors are appointed by Presidential Decree and can be reappointed indefinitely until removed by the President of Venezuela. The transformation of PdVSA into an organ of the state with the resulting loss of organizational efficiency and effectiveness also contributed to declining oil production.

In 2008 the Venezuelan government changed PdVSA's charter and mission statement to allow it to participate in any industry that could contribute to social development, including health care, education and agriculture.[18] These "non-commercial, non-oil related" obligations are estimated in PdVSA's 2008 annual report to be on the order of $14 billion annually. As a result of these non-commercial obligations as well as the high level of taxes paid by PdVSA to the Venezuelan government which constitute about 50% of the public budget, has led to underinvestment by the company in the hydrocarbon sector in recent years, also contributing to the decline in oil production.

Since the fiscal burdens on PdVSA are unlikely to change while President Chavez remains in office, medium to long term production growth will have to come from private company investment. Recognizing this fact, Venezuela auctioned Orinoco heavy oil blocks to foreign investors under softened fiscal terms in 2009-2010. The U.S. Geological Survey has estimated recoverable reserves of 513 billion barrels in Orinoco, double Saudi Arabia.[19] Consortia led by Repsol, Chevron, ENI and Gazprom, in partnership with PdVSA (60%), bid up to $US80 billion on Orinoco blocks Carabobo and Junin in 2010.[20] The size and attractiveness of the Orinoco "prize" appeared to trump Venezuela's negative investment climate. The development of the Junin and Carabobo blocks will be extremely demanding and will require unprecedented investments, technology deployment and coordination between the companies and Venezuelan authorities.[21] It remains to be seen if such a challenging project can be successfully implemented in Venezuela given its hostile political environment and PdVSA's diminished capacity.

Footnotes

[1] For a more detailed discussion of these considerations for these Latin American NOCs, see Appendix and Companion to Chapter 16 - Hydrocarbon Sector Regulation and Cross-border Trade in the Western Hemisphere in Energy Cooperation in the Western Hemisphere, Center for Strategic and International Studies, 2007 (the Appendix was prepared by CEE-UT); and A Citizen's Guide to National Oil Companies, a joint effort of the World Bank and CEE-UT (http://www.beg.utexas.edu/energyecon/nocs/).

[2] ESMAP, 2005, Comparative Study on the Distribution of Oil Rents in Bolivia, Colombia, Ecuador and Peru, Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP, January 2005).

[3] All references to oil and gas production volumes, increases and decreases based on information in the BP Statistical Review of World Energy 2010 available at www.bp.com.

[4] Armando Zamora Reyes, ANH Director General, 2009 presentation at the Herold Pacesetters Energy Conference.www.anh.gov.co/media/presentaciones

[5] Ecopetrol 2008 SEC Form 20F. http://www.ecopetrol.co.com/english

[6] Armando Zamora Reyes, ANH Director General, 2009 presentation at the Herold Pacesetters Energy Conference.www.anh.gov.co/media/presentaciones

[7] "Politica de Consolidacion de la Seguridad Democratica: Resultados y Retos", January 2008, available at www.anh.gov.co/media/salaPrensa/juan_carlos_pinzon.ppt.

[8] Ecopetrol 2008 SEC Form 20F available at http://www.ecopetrol.co.com/english. The company is authorized to increase private ownership to 20%, which would reduce the government's interest to 80%.

[9] CEE-UT, 2006, "Brazil's restructuring of the Oil & Gas Industry", http://www.beg.utexas.edu/energyecon/new-era/case_studies/Brazil_Restructuring_of_the_Oil_Gas_Industry.pdf.

[10] Eva Dantas and Martin Bell, 2006, "The Development of Firm-Centered Knowledge Networks in Emerging Economies: The Case of Petrobras in the Offshore Oil Innovation System in Brazil," Paper presented at the Druid Summer Conference 2006 on Knowledge, Innovation and Competitiveness: Dynamics of Firms, Networks and Institutions, Copenhagen (June).

[11] Drago, Bruno, 2011, "Brazil Pre-Salt: A New Legal Framework for the Oil Industry in Brazil," Demarest e Almeida Advogados, Sao Paulo and Rio de Janeiro, Brazil (January).

[12] Oil and gas reserves, production and consumption data from BP Statistical Review of World Energy, www.bp.com.

[13] An equity basis would entail ownership of reserves and production.

[14] Further Pemex has not operated internationally, historically, outside of a refining joint venture with Shell in Deer Park, Texas.

[15] "Moody's Global Integrated Oil & Gas Industry Rating Methodology," November 2009 available at www.moodys.com.

[16] Communications with CNH and other government officials. Also see Carlos Manuel Rodriquez and Thomas

Black, March 29, 2010, "PEMEX Performance Contracts May Fail to Attract", Bloomberg.

[17] ConocoPhillips and ExxonMobil sought relief in international arbitration courts.

[18] "Petroleos de Venezuela, S.A.: Full Rating Report," November 19, 2010 available at www.fitchratings.com.

[19] "Venezuela's Carabobo," Financial Times, February 11, 2010 available at www.ft.com.

[20] Voght, David, "Heavy Oil in Venezuela," Presentation to the La Jolla XIX Latin American Energy Conference, IPD Latin America, May 11, 2010.

[21] Mander, Benedict, "Venezuela secures $80 billion oil investment," Financial Times, February 16, 2010 available at www.ft.com.

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