

Brazil's Evolving Energy Horizon

Brazil's compelling energy profile demands continued consideration. The country is the eighth largest energy consumer in the world and third largest in the Americas. In terms of production Brazil is the ninth largest globally and trails only the United States and Canada in the Western Hemisphere. In South America, Brazil is second only to Venezuela in oil production terms. But the country faces critical questions for attracting energy investment.

Despite strong economic headwinds, Brazil's energy sector has proved surprisingly resilient. But it is important to disaggregate the various segments of the sector. Significant progress in renewable energy deployment and increased natural gas for power generation, as well as laudatory emissions reductions targets in advance of the Paris climate meeting must be separated from the discouraging performance of Brazil's oil sector. Even the power sector, though facing financing issues will see more immediate returns from fiscal balance measures being developed by the government. The same is not true for the oil sector.

There are signs that the elements of a broader macroeconomic recovery exist, but only given important contingencies and tough decisions being made by the federal government and all of Brazil. For the energy sector, how the country's authorities manage the oil sector and adopt a more flexible posture are critical. And while the power sector is, by comparison, in a better position the question of financing and how the BNDES financing gap will be filled remains unanswered. There are a litany of tough choices facing both the government and industry alike in Brazil's oil sector, not the least of which is how Petrobras will emerge from its debilitating corruption scandal.

Oil Sector & Bid Rounds

A current discussion of Brazil's energy sector starts with the most recent bid round of oil blocks. The results from the October 7 13th Bid Round were supremely disappointing with less than 14 percent of

blocks adjudicated. Of the 266 blocks tendered by the country's regulator, ANP, only 37 bids received bids with only 17 companies participating in the competition. Worse, Brazil's national oil company, Petrobras, did not bid at all for the first time since 1999.

Not unlike many countries across the globe, Brazil's oil sector, and more specifically access to and exploitation of oil, is immensely political. Round 13's failure has only seemed to heighten the politicization of many of the concerns surrounding Brazil's oil sector, particularly issues such as local content and the role of Petrobras. Nevertheless, the paucity of bidders and severely reduced competition underscores the desperate situation in Brazil's oil sector attractiveness and by extension its competitiveness.

Brazil must make several key decisions in order to recapture the competition that previously existed in its oil sector. There is a clear need for serious revisions to the current contractual and fiscal terms, but particularly the penurious local content requirements and onerous restrictions placed on Petrobras as operator of pre-salt blocks, as well as a lack of opportunities for international oil companies. There appears to be a high level of understanding of these issues across all facets of the industry, including relevant government agencies. However, despite this necessity, changes are yet to happen.

Beyond contractual and regulatory revisions, Brazil would do well to conduct more frequent and predictable bid rounds, which would also greatly improve competition. This is not necessarily a new challenge or call to arms, but perhaps a more urgent one on the heels of Round 13.

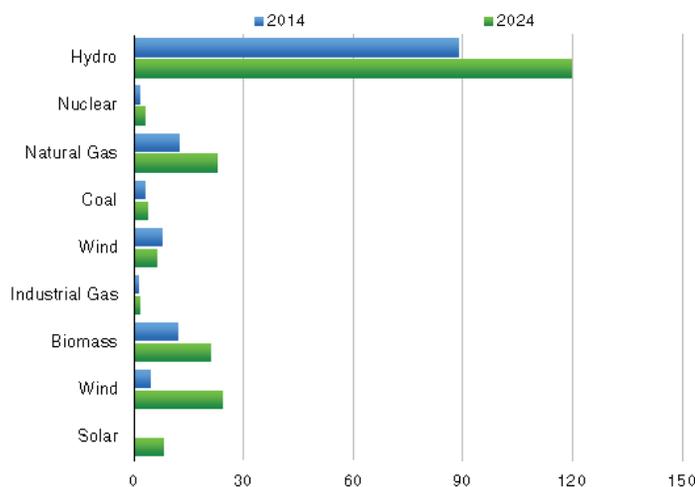
Round 13 also points to a new chapter for Brazil's oil sector and its bidding process, one that cannot rely on the national oil company to gobble up enough blocks to render it successful nor guarantee future progress. Petrobras is no longer able to play the bail out role.

Renewable Energy & Climate Change

Between bilateral meetings with President Obama and her participation in the annual United Nations General Assembly meeting, President Rousseff announced plans to cut Brazil's emissions by 37 percent by 2025 from 2005 levels, largely through cutting deforestation. As part of the emissions reduction effort, the government has bold plans to reduce the country's energy intensity level to bring it more in line with developed economies in Europe.

At the same time, President Rousseff has pledged that Brazil's energy matrix will comprise 23 percent non-hydro renewables including wind, solar and biomass by 2030. According to Mauricio Tolmasquim, president of the Energy Research Company (EPE) of the Ministry of Mines and Energy incorporating hydropower means 45 percent of Brazil's overall energy matrix will be derived from renewable resources. Dr. Tolmasquim emphasized that energy prices have restricted growth, indicating that renewables and energy efficiency will be critical in the coming years.

Fig. 1 Installed Capacity 2014-2024 (GW)



Source: Ministry of Energy and Mines, Brazil

In another counterpoint to Brazil's posture and efforts toward the renewable energy and power sector, the government announced the approval of higher rates for wind and solar projects in the auction being held in November, underscoring flexibility, and positive news for increased deployment of renewable energy.

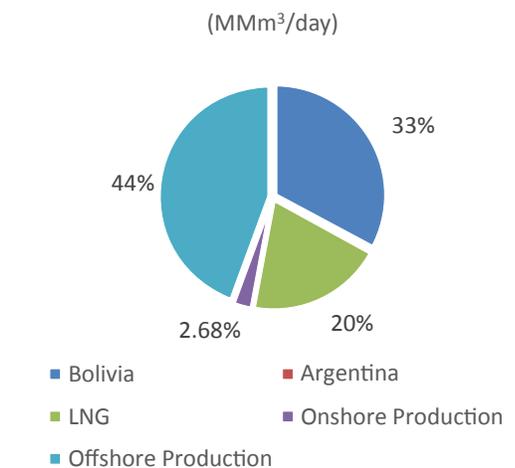
Natural Gas

Not unlike the progress with renewables, Brazil may be entering a new moment for its natural gas outlook. This September reached record levels of natural gas

production, and there is no doubt that Brazil has made huge strides in developing its natural gas infrastructure, power generation and reserves. Indeed, declining production from the once-prolific Campos Basin is being compensated by production from the pre-salt. At the same time, the over 9,000 kilometer network of transportation infrastructure for natural gas, and particularly the four routes developed to move the associated gas of the pre-salt will reinforce progress already made.

A silver lining of Round 13 is the blocks won by companies seeking to develop gas-fired power projects. Petrobras has increased its thermal generation footprint to count 18 power stations and half of its thermal power. Indeed, several speakers highlighted the synergies in Brazil between the natural gas and power sector.

Fig. 2 Average Natural Gas Production/Importation- Brazil (MMm³/day)



Source: Prumo Logística Global

The concept of a new moment for natural gas in Brazil is derived from an increasing number of new players, the pre-salt, and a lessening of Petrobras' dominant market position.

In 2019, several Petrobras contracts will expire and create opportunity and a possible inflection point for natural gas. A byproduct of the unfolding scandal impacting Petrobras will be the roughly \$6 - 7 billion divestitures in 2015-2016 of its natural gas and power portfolio.

Also in 2019, a new gas supply agreement for the Bolivia-Brazil pipeline will come due.

price reference natural gas supplies and Prumo's Oil & Gas Director, Decio Oddone is very optimistic about natural gas's new moment in Brazil.

Finance

Brazil's fiscal management has come under fire in part due to accounting maneuvers that have added an estimated 35 - 40 billion reais to the nation's debt. A deal to resolve the discrepancies between the Treasury accounts and those of the national development bank, BNDES, could restore some confidence to the government's management abilities.

A case before the Federal Accounts Court is considering the issue. Opposition legislators are using the case to support calls for impeachment of President Rousseff.

The latest fiscal problems will only add to Brazil's weak economic outlook for 2016. Finance Minister Joaquim Levy stressed that the government will adopt measures to improve the fiscal situation but that many of these depend on the legislature's approval, which must act quickly if Brazil is to see positive GDP growth next year.

Regional Integration

Across Latin America and particularly the Southern Cone, integration remains critical for Brazil. The trailblazing Bolivia to Brazil natural gas pipeline is perhaps Exhibit A. CAF Energy VP Hamilton Moss noted that both the Bolivia - Brazil natural gas pipeline and the Itaipu hydroelectric project prove the rationale for interconnection and integration; both illustrate the efficacy of setting a clear goal and working together to reach the target. Moss added that when necessity and political will coincide, integration takes place often resulting in very beneficial projects.

Still, while interconnection is an important first step, it is just a stepping stone to the far greater - and ultimately more beneficial - energy integration goal. For Brazil and its nearest neighbors, this target is still far away.

Conclusions

As Brazil faces a series of economic, political, and fiscal challenges, that will continue to destabilize sectors of the economy well into 2016, these should not detract attention from the many opportunities in the energy industry. Petrobras' divestiture plans and diminishing role is an opening for foreign investors. Natural gas is poised to alter the power sector and industry, while renewable deployment keeps pace with Brazil's goals for emissions reduction and a cleaner energy future.

The immediate future will be rocky but the government can take concrete steps to mitigate the impact on energy investment and progress. This means not just increasing the frequency and competitiveness of oil and gas auctions and boosting pre-salt production, but also building on interconnection efforts and further ensuring Brazil's place as an energy hub spanning the southern cone. The government and private sector's actions this year and next, will have far-reaching implications.

This report is based on discussions during the Brazil Energy Roundtable, held on October 23 in Rio de Janeiro.

The Institute of the Americas' Energy Program works to foster a deeper understanding of the most critical energy issues facing the Western Hemisphere. For more information and upcoming events, follow us on Twitter @IOA_Energy or visit: www.iamericas.org/energy