Brazil

Brazil’s “mid-table” Top Markets ranking is impacted by the nation’s economic and electricity demand growth, as well as a policy and regulatory environment that may constrain investment and exporter opportunities in the energy sector. Brazil is currently the largest electricity market in Latin America and one of the world’s most important emerging markets, but smart grid deployments have been slowed by regulatory and technical hurdles. The business environment for U.S. smart grid exporters has been challenging as well: Brazil scores very low for export opportunities because of its historical reliance on domestic suppliers to its electricity sector, and strong local partnerships and longer timelines for investment are usually required of foreign entrants.

U.S. exports of transmission & distribution (T&D) equipment have grown substantially in recent years and investment in Brazil’s power infrastructure will need to continue in order to meet fast-growing electricity demand, particularly in urban centers that are distanced from traditional hydro power sources. Over the last year or two, Brazil’s leadership has intensified its efforts to meet electricity supply challenges, often at the expense of utilities. The utility finance environment has suffered as a result and smart grid ICT investments have been delayed.

Sustained opportunities for U.S. suppliers of T&D infrastructure are expected in Brazil, along with limited opportunities for technology and solution providers in the Advanced Metering Infrastructure sub-sector. U.S. industry and government stakeholders will have continued opportunity to provide technical support and exchanges that help strengthen the smart grid regulatory and business environment in Brazil.

Market Overview

Brazil’s electricity market is heavily dependent on hydroelectric power plants - with approximately 80% of its electricity generated through hydropower in an average year, droughts can severely restrict the country’s electricity generation. Increased volatility of supply and rising wholesale electricity costs have been the headline-making trends of recent years for Brazil’s power sector. Public officials have focused on short-term funding solutions to these problems, financed mostly through public and utility industry debt, keeping consumer electricity prices relatively low.

Privatization and competition have been limited in Brazil’s power supply and services markets; with the state-owned Centrais Elétricas Brasileiras (Eletrobrás) controlling about one-third of total installed capacity and a handful of state-owned companies generating most of the rest. Transmission lines in Brazil are largely state-owned as well, and the Operador Nacional do Sistema Elétrico (ONS) is a nationwide operator. Privatization and competition have gone much further in the distribution segment, where there are more than 60 providers across the country. While state governments are allowed monopolies over their electricity markets, many have been privatized. Approximately 70% of distribution companies rely to some degree on private capital.

Growth in electricity consumption is expected to continue in Brazil, increasing at an average of 3.8% annually between 2012 and 2022 and driving the need for further investment in infrastructure. Beginning in 2012, Brazil’s government set out on an ambitious plan to increase and diversify its energy mix, with goals to invest approximately $235 billion and install 36 Gigawatts (GW) of hydropower, 12GW of biomass, and 11GW of wind over the following 10 years.

Although Brazil has supported renewable energy projects, particularly wind, transmission infrastructure has been inadequate, delaying a number of projects. Brazil now requires that projects involved in energy auctions prove that they have transmission lines secured prior to participating in the auctions. This will reduce the problems of delays associated with insufficient transmission infrastructure, while helping to drive the market for T&D equipment.
Poor energy efficiency and average electricity losses in excess of 15% are additional pressing issues impacting Brazil’s market. Aging transmission lines delivering power over long distances combined with rampant electricity theft in segments of the distribution network are largely to blame.

The need to upgrade infrastructure is a common refrain in Brazil, but meeting the need has proved difficult. In 2012, Eletrobrás announced plans to invest heavily across generation, transmission, and distribution over the following two years, but it failed to reach its targets. The company subsequently cut its workforce and cited an imbalance between high generation costs and electricity tariffs that have been largely suppressed by national and state governments.

Policy and Regulatory Environment

Brazil’s electricity market is regulated by the National Electricity Agency (ANEEL). ANEEL regulates public tenders for electricity sold to distribution utilities, sets tariffs for residential consumers in the regulated market, and is responsible for maintaining an economic balance that enables distributors to cover operating cost and recover an adequate return on investment. Meanwhile, a liberalized and unregulated system governs electricity trading between independent energy suppliers, and industrial consumers have the option of purchasing from the unregulated market.

In 2011, Brazil released its “Ten Year Energy Plan” and set a goal of adding 18 GW of renewables capacity by 2020. The expanded renewable supply is intended to diversify the energy supply mix and help Brazil meet its goals to reduce greenhouse gases, with a reduction of emissions in the range of 36.1% to 38.9% below 1990 levels. Renewable energy projects in Brazil – particularly locally sourced projects – receive favorable financing in Brazil and electricity produced from renewable sources with capacity less than or equal to 30 megawatts (MW) receives a 50% reduction in T&D tariffs. Brazil’s first “solar only” energy auction attracted bids among the lowest in the world, bringing Brazil closer to achieving the world’s cheapest solar contract prices – without subsidies.

Despite the long-standing goal of nationwide deployment, Brazil’s smart meter market has experienced a number of false starts and the regulatory environment has not developed favorably to drive deployment. In 2012, ANEEL approved a long-awaited resolution establishing requirements for smart meters, but the regulator limited the classes of consumers for the roll-out. The smart grid market is still eagerly awaiting additional technical regulations from both ANEEL and Brazil’s lead standards body, INMETRO, that will finally kick-off deployment.

Brazil’s Energy Efficiency Program (EEP) mandates distribution utility spending in energy efficiency, requiring about $250m to be invested annually. However, restrictive program requirements have limited the effectiveness of spending and the wider energy efficiency market in Brazil has been stifled by a high cost of capital for financing deals.

Market Analysis

Brazil’s expanding electricity needs and investment in large infrastructure projects throughout a recent period of economic growth have been important growth drivers for U.S. suppliers of grid modernization equipment and services. In 2013, U.S. T&D equipment
exports to Brazil more than doubled to over $94 billion in revenue and the country reached #3 as a U.S. global export market, ahead of China. While this level of growth is not likely to be sustained, Brazil is continuing to invest in transmission projects despite economic headwinds.

Beginning with the Lula administration, Brazil set ambitious goals for its national smart grid deployment, but the market has been slow to develop and the smart grid regulatory and business environment has fallen short of expectations. Once the technical hurdles are overcome, the market expects significant investment in smart distribution solutions that can solve the problem of electricity theft. While the smart meter market is likely to be limited to an estimated $500 million in the near-term, some of the larger, urban utilities with higher-income consumer footprints will require advanced smart grid solutions to a range of power management challenges.

Opportunities and Challenges for U.S. Companies

U.S. suppliers continue to find export success in Brazil’s T&D sector, where projects are continuing apace though economic and political issues do pose a threat to future growth. Opportunities for transmission to connect areas of energy supply growth – particularly wind – to growing demand should be a focus. And as the integration of new power sources moves forward, many Brazilian utilities will require more advanced power management solutions. Brazil continues to be a challenging market for U.S firms to do business, and a great deal of upfront work to overcome both cultural and technical issues is required of technology firms in particular.

Opportunities

- Transmission build-out and solutions to ensure supply/demand balance.
- Distributed generation management as sector grows.
- Electricity delivery and demand side management solutions as smart grid deployments advance in 2015.

Challenges

- Utilities have been forced to shoulder the financial burden to meet recent electricity demand growth – an improved regulatory and finance environment will be required to drive future investments.