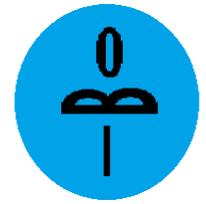


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Uruguay - Clean Energy

Already one of the most electrified countries in the Western Hemisphere with 99.6% of homes receiving electricity, Uruguay expects 90% of its electricity to be generated from renewable resources in 2015 (compared to just 40% as recently as 2012). (Source: **Uruguayan Ministry of Industry, Energy and Mine's Energy Office website**). Historically, the lack of commercially viable domestic fossil fuel resources meant that traditional electricity generating options such as coal and natural gas were either unavailable or unaffordable. This left a generating system based upon hydropower and imported petroleum which resulted in relatively high electricity tariffs. In this environment, alternatives such as wind and solar have become cost competitive. Aided by aggressive Power Purchase Agreements (PPA) to promote renewables, the country has gone from an importer to an export-



er of electricity in just a few years.

Although it is transitioning to greener energy sources, 40% of Uruguay's imports are energy products, primarily petroleum – this has left the economy vulnerable to external shocks as oil prices rise and fall. To address this situation, the electricity sector has begun moving away from petroleum-based generation. As of October 2014, hydroelectric capacity was 1500 MW, but this is unlikely to grow significantly given that the country is already exploiting all of its large-scale hydro resources. The country also has more than 400 MW of

installed wind capacity, which is expected to grow to over 1200 MW by the end of 2015 when Uruguay will have 23 wind farms operating in 11 of the country's 19 departments. The country has an average elec-

tricity demand of 1100 MW (expected to grow to 1200 MW in 2015) and peak demand rarely exceeds 1800 MW. Over a one year period from November 2013 to November 2014, wind-generated power increased from 1% to over 10% of total electricity production. (Source, – **Espectador interview; MIEME Office website**).

This transition has created a novel situation in which Uruguay is set to become the first country in the world to use wind energy for base power and hydroelectric to meet peak demand. Once the installed wind capacity approaches the

target of 1200 MW, Uruguay may be able to meet 100% of its electricity demand with wind energy for extended periods of time. This will allow the country to keep hydroelectric reservoirs at near maximum capacity. When needed, the reservoirs can be opened with as little as 15 minutes' notice to meet the additional demand. Once a planned liquefied natural gas (LNG) terminal comes online later this year, the country will have an additional back-up option should hydro reserves be reduced due to drought.

The rapid transition to renewables is understandable given the price that Uruguayan consumers have paid for electricity. According to the Bloomberg Report "Clima Scopio 2013," Uruguay has the most expensive electricity prices in South America, with an average of \$0.26 US \$ per kWh.

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Brazil - Investment in Cuban Infrastructure

Brazilian Development Bank (BNDES) financing has played a role in developing Cuba's infrastructure sector.

Since the countries re-established diplomatic relations in 1986, they have strength-

ened bilateral economic ties. Last year, Brazil maintained a US \$446.7 million trade surplus with Cuba. Over the past ten years, Brazilian exports to Cuba nearly quadrupled, from US \$131 million in 2004 to US

\$507.8 million in 2014. Brazil's largest exports to Cuba included grains, meat, industrial machinery (mainly for agriculture), and other foods products. From 2004 to 2014, Brazilian imports from Cuba increased

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from US \$45.3 million to US \$61 million. Pharmaceutical products made up more than 95 percent of Brazil's imports from Cuba. (Data from Global Trade Atlas Navigator).

In 2008, the Brazilian Agency for the Promotion of Exports and Investments (APEX) opened an office in Cuba to promote Brazilian public and private investment in the island – one of only a few APEX missions abroad. In 2011, Brazilian Ambassador to Cuba Jose Martin announced that, in addition to exporting products to Cuba, Brazilian businesses would help “update the Cuban economic model” and improve Cuba's trade balance. Cuban Foreign Trade and Investment Minister Rodrigo Malmierca subsequently affirmed that the two countries were on a path toward deepening and broadening economic and trade relations.

Brazilian Development Bank (BNDES) financing facilitated engagement in developing Cuba's infrastructure sector. BNDES project financing was contingent upon a project procuring high volumes of Brazilian goods and services. The construction of the Mariel Port (one of Cuba's biggest infrastructure projects in decades, located 28 miles west of Havana and 120 miles from Florida) by Brazilian companies was the signature bilateral economic coop-

eration project. Built by Brazil's biggest infrastructure company Odebrecht, partly financed by BNDES (\$682 million of the almost \$1 billion total), and operated by one of the world's largest port operators (Singapore's PSA International), the project was the first Economic Development Zone in Cuba. According to Odebrecht, at least 400 Brazilian companies exported goods and services to Cuba under the Mariel Port contract, thereby gaining experience and position in the Cuban market.

In addition to the port project, BNDES financed US \$150 million of Odebrecht's US\$ 207 million plan to modernize several airports on the island, with Cuba committed to significant purchases of Brazilian goods and services under the airport contract. Odebrecht also began managing a sugar mill in Cienfuegos province in 2012, where it invested in new machinery and utilized innovative management techniques to use Cuba's sugarcane crop to produce sugar and ethanol. Although the Mais Medicos program, which recruits thousands of foreign (mostly Cuban) doctors to work in poor and remote areas of Brazil, remains politically controversial, Cuban doctors in Brazil have been well received in under-served areas and generated as much as US \$270 million a year in foreign currency for the Cuban government, according to

media reports.



Brazilian Firms Expect to Gain from U.S. - Cuba Rapprochement

In a December public address, BNDES President Luciano Coutinho said that Brazilian companies were in a privileged position, and assuming an eventual end of

the Cuban embargo, Brazil's return on its Cuban investments would accelerate. Similarly, President Rousseff recently stated that the change of policy between the United States and Cuba demonstrated the importance of the Mariel Port for Brazil and the entire region.

“According to Odebrecht, at least 400 Brazilian companies exported goods and services to Cuba under the Mariel Port contract, thereby gaining experience and position in the Cuban market..”

Colombia – Partnership with Facebook

On January 14 Facebook co-founder Mark Zuckerberg together with President Juan Manuel Santos launched Internet.org, a Facebook-led initiative that provides free access to a mobile phone application linking users to 15 online services. Santos highlighted the Colombian government's interest utilizing technology, including Internet.org, to increase the connectivity of marginalized populations in order to lessen

income inequality and reduce poverty. Both Santos and Zuckerberg underscored the important role of technology in the peace process, with Zuckerberg noting that tools of connectivity can foster a “tighter social fabric,” a key element to creating an environment for peace.

Colombia ICT Minister Diego Molano has made a number of trips to Silicon Val-

ley to forge partnerships with U.S. technology companies to further Colombia's goal of increasing internet penetration (In 2013, 52 percent of the Colombian population had internet access, according to the World Bank). Zuckerberg told media that Facebook chose to team up with Colombia after the government's “Vive Digital” initiative showed impressive results, connecting 98 percent of Colombian municipalities over

Colombia – continued

the past four years. Colombia is only the fourth country in the world – and first in Latin America – to join this Facebook project.

Under the terms of the agreement, Internet.org will provide 15 free services to Tigo (a Colombian mobile operator) customers including AccuWeather, Facebook, UN Women: Yo Aprendo (women's empowerment), MAMA (mobile health), Unicef, Su Dinero (financial information), 24 Symbols (access to over 100,000 books), Wikipedia, government services for education (Education Evaluation Institute or ICFES), land restitution and agriculture information

network (Agronet), and victims of the armed conflict (La Unidad para la Atención y Reparación Integral a las Víctimas). (Colombia has seven million Tigo users and 21 million Facebook users. Access to the application's services is free, but links that lead to information on other websites will require users to pay data charges.



Canada – British Columbia's Natural Gas Plans

In a December 2014 Belfer Center (Harvard Kennedy School) discussion paper, oil and gas expert Leonardo Maugeri opined that British Columbia is unlikely to produce LNG before 2020. Rather, Canada's first LNG production will likely originate on the East Coast – the Goldboro LNG project in Nova Scotia. Maugeri cited several significant challenges facing Western Canada, including First Nations' legal title to land, huge infrastructure costs to build both pipelines and green-field plants, and inflationary costs. According to Maugeri, the fall of oil prices “could undermine most Canadian LNG indefinitely” because the delivery costs from western Canada are too high and LNG prices are linked to oil. Pieridae Energy Canada leads the Goldboro project; it signed a contingent 20-year agreement in 2013 with Germany-based E.ON Global Commodities SE for the purchase of approximately five million tons of LNG from Goldboro annually, based on LNG market prices in Western Europe.

BC LNG Developers Alliance President

David Keane was more optimistic than Maugeri about BC's LNG prospects. In a CBC Radio Vancouver interview regarding the effect of low oil prices on proposed liquefied natural gas (LNG) projects in British Columbia, Keane said LNG proponents are not focused on the daily spot price of oil “whether it's \$115/barrel or \$50/barrel” – the focus for these companies is on the long-term outlook for supply and demand. Some of the projects under consideration in British Columbia are from proponents that are among the world's largest energy companies; they have energy demands that they will have to fill, he said. “Supply will have to come from somewhere.” Keane pointed out that British Columbia is globally competitive. “Good projects will go forward” in British Columbia, as long as they have a stable fiscal and environmental framework.

Keane said he was confident at least one proponent will make a final investment decision in 2015. Keane cited the positive steps Petronas made on its Pacific Northwest LNG project over the holidays, inking

“Good projects will go forward in British Columbia...”

a property tax agreement with the municipality of Port Edwards and impact management benefit agreements with the Kitselas and Metlakatla First Nations.

A recent policy paper released by the Business Council of British Columbia placed the number of potential LNG projects and related pipelines in the province at 19, with a collective estimated value of more than \$90 billion. These projects account for nearly 40 percent of the total value of all of the proposed major capital projects in BC that form the foundation for growth in the province. While BCBC is optimistic that an LNG industry will be established in the province, it will likely include only a fraction of the 19 LNG projects under current consideration.

Canada—Nunavut's Energy Picture

The territory of Nunavut, in Canada's Arctic, has no road access to other parts of the country. It is a unique area in Canada in that all fuel is brought in by tanker - gasoline for vehicles, diesel for home heating and electricity generation, and jet fuel. In 2012-13 the territory imported 180 million liters of fuel, including 44 million liters of diesel to produce electricity, 64 million liters of fuel for transportation, and 63 million liters of heating fuel. The territory has 33,000 widely-dispersed residents. (Source: Government of Nunavut Business Plan 2012-15).

Petroleum-fired thermal electricity is the main source of energy produced in Nunavut. There is no electrical grid with interconnectivity between communities; each of Nunavut's 24 hamlets and the capital of Iqaluit is served by its own diesel-fired power plant. The territorial government is responsible for purchase, transportation, storage, and distribution of all oil and gas in the territory. The local government's Petroleum Products Division buys fuel for the entire territory once a year and then coordinates delivery by ship during the summer sealift season. Annual fuel purchases average almost \$200 million. Nearly 20 percent of the provincial budget is spent on energy subsidies for residences, about \$25,000 per housing unit, and to heat government facilities.. (Source: [Nunavut Energy website.](#))

Oil and Gas Exploration in Nunavut Off-shore hydrocarbon exploration was first begun in the 1960s, when Nunavut was still a part of the Northwest Territories, and the results showed that the region could hold more than 20 percent of Canada's oil and gas reserves. However, exploration did not lead to extensive exploitation of the resources. Two oil fields, seven gas fields, and seven oil and gas fields opened and closed over the years in Nunavut, with the largest producing almost three million barrels in 1985-1996 on Cameron Island (at 76 degrees N, about 700 miles north of the Arctic Circle). Recoverable resources are currently stated at 323 million barrels of crude and 16 trillion cubic feet of natural gas (source: Aboriginal Affairs and Northern Development Canada). High infrastructure costs, remote locations, and the problems of operating in a cold and unpredictable environment are all factors in the lack of ongoing exploitation of these resources.

Climate change and the opening of northern shipping routes have spurred more interest in the region's oil and gas potential, but to date the activity has been little more than discussions in trade journals and at conferences. Nunavut Premier Peter Taptuna stated in early December that despite falling oil prices, he believes the territory can still generate revenue through royalties

on oil and gas extraction, and he is determined to capitalize on renewed interest in the Arctic and draw in industry. A local [government sponsored summit](#) on oil and



gas was held January 12-15 and addressed some of the industry's questions; authorities hope the conclusions will eventually in a set of principles and an official policy from the local government regarding oil and gas exploration and development.

Even with the recent steep decline in oil prices, the local government will continue to look for alternative sources of fuel to lessen dependence on annual shipments of fuel via tanker. The territory currently has only token renewable energy sources in the form of a few minor wind and solar projects. While hydroelectric offers the most likely alternative to diesel-generated power, Nunavut lacks the financial resources to cover the upfront capital costs. The local government owned energy provider, Qulliq Energy Corporation, has had plans for ten years for a hydroelectric plant that would generate between 16 and 25 megawatts near Iqaluit, but there has been little progress beyond studies.

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The state-owned power company Administración Nacional de Usinas y Trasmisiones Eléctricas (UTE) reported that current electricity prices range from \$0.10 to \$0.50 US \$ per kWh depending upon the type of consumer (Residential, Commercial, or Industrial) and their level of consumption. Historically, thermal generation from imported petroleum had accounted for as much as 80% of generated electricity, and regularly accounted for 30-50%. According to newspaper El Pais, the cost of elec-

tricity from thermal sources ranges from \$0.30 to \$0.35 per kWh and is the primary driver of high electricity prices.

As a result more stable hydropower reserves and the additional installed wind generation, UTE was able to cut electricity prices by 5 to 8% in July 2014. Although the state-owned utility recently announced that it would raise electricity prices in 2015, the increases will be below inflation.

In addition to the role played by prices, the

Uruguayan government has instituted a number of public policies to support the shift to renewables. In 2008, the GOU put forward a "Strategic Energy Policy for 2030" that was approved by the Cabinet and, by 2010, had gained widespread political support. This overall energy strategy combined support for a number of diverse and unconventional sources, including wind, solar photovoltaics, biomass, liquefied natural gas, energy efficiency, and offshore oil and gas exploration. From a re-

newable energy perspective, the most direct policy outcomes were a series of long-term (20 years) Power Purchase Agreements (PPA) for wind and solar production by UTE. The first PPA in August 2009 called for up to 150 MW of new installed capacity. This PPA was quickly met and extended to include an additional 150 MW, for a total of 300 MW. In May 2011, a second PPA offered a maximum price of \$0.065 US \$ per kWh for an additional 500 MW of wind capacity. UTE offered a similar set of PPAs for solar energy aimed at getting installed capacity up to 200 MW.

With growing domestic electricity production, Uruguay is looking to create new export opportunities to its neighbors Argentina and Brazil. While the country historically had to import as much as 500 GWh per month from these countries to meet do-

mestic needs, Uruguay has not imported electricity from either Argentina or Brazil since October 2012. In fact, Uruguay's exports to Argentina are up to 300 GWh per month and the country exported roughly 10% of its production in 2014. UTE is building a new connection to Brazil that will open in the first quarter of 2015, giving Uruguay options on where to sell its excess electricity to get the highest price.

The country plans to open a liquefied natural gas terminal in Montevideo in the second half of 2015. (Source: [El Pais](#) article). The increase in renewable electricity production has shifted the original aim of the terminal from providing natural gas for electricity production to serving as a distribution hub to export to neighboring countries. A pipeline to Argentina already exists (it was originally built to import natural gas

from Argentina, but never operated at more than 5% of its capacity due to lack of production in the Argentine gas sector). The LNG terminal design will accommodate the largest size LNG ships, giving the Uruguayans the option of using the facility as a transfer point to smaller ships that could then serve Brazilian markets.

Moving forward, the government has announced it is looking to expand electricity and liquefied natural gas to other sectors of the economy such as transportation, industry and home use. As a first step, the UTE board in 2014 approved the purchase of 30 electric vehicles as a pilot project, with further purchases expected in the near future.

Other resources for anyone interested in overseas business news:



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