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FEATURED Q&A

What is Ecuador Doing to Diversify its Energy Matrix?

So far in 2019, 88 percent of Ecuador's electricity comes from the country's hydroelectric plants, Rafael Soria writes below. // File Photo: Ecuadorean Government.

Q **Ecuador is seeking $400 million in private investments for renewable energy projects as part of a broader plan to change the country's energy matrix, Energy and Nonrenewable Resources Minister Carlos Pérez said in July. The government will award concession contracts to private firms to build one photovoltaic plant and two stages of a wind farm, the first two large-scale renewable energy projects in the Andean country. Does Ecuador's government have the best policies in place to attract investment to its renewable energy sector? What portion of the country's energy comes from renewable sources, and how much potential does it have to expand that percentage? What is President Lenín Moreno's administration doing to diversify Ecuador's energy matrix, and what else should it do to advance its goals?**

A **Rafael Soria, specialist in energy planning and professor in the Escuela Politécnica Nacional (EPN) in Quito:** "Ecuador's electricity sector is going through a good moment after a decade of investing heavily to develop hydroelectric plants, adding 2.8 gigawatts (GW) with eight large projects. Despite the serious technical problems in these projects, so far in 2019, 88 percent of electricity comes from hydroelectric plants. Yet the electricity contribution of nonconventional renewable energies is still less than 1 percent in annual accumulated electricity. The situation is different when we analyze the primary energy matrix, in which 88 percent comes from oil, 5 percent from natural gas, and renewable energies total just 7 percent. Of the oil produced, approximately 60 percent is exported. Our final

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TOP NEWS

ELECTRICITY

Colombian Gov't to Hand Over Electricaribe in First Half of 2020

Colombian electric power distributor Electricaribe will be handed over to its buyers in March or April, following delays in the sell-off schedule, the government said.

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RENEWABLES

Brazil Looking to Boost Ethanol Exports to China

Brazil's ethanol industry is reportedly seeking to expand its exports to China as the Asian country considers establishing a 10 percent ethanol blend in gasoline.

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OIL & GAS

Pemex's Finances Pose a Risk to Economy: Analyst

Mexican state oil company Pemex's financial situation is posing a risk to the country's economic growth, according to Ariane Ortiz-Bollin, an analyst at Moody's Investors Services.

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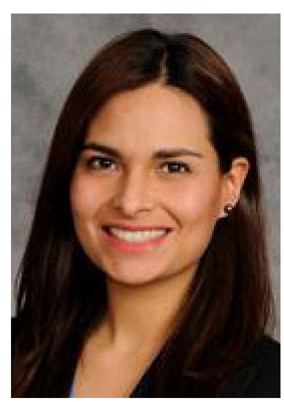

Ortiz-Bollin // File Photo: Moody's.

OIL AND GAS NEWS

Pemex's Finances Pose a Risk to Mexico Economy: Analyst

The shaky financial situation of Mexican state oil company Pemex is posing a risk to the country's economic growth, an analyst at Moody's Investors Service said Wednesday in Mexico City, Reuters reported. The analyst, Ariane Ortiz-Bollin, said the state oil company's exploration and production activities need more funding than what President Andrés Manuel López Obrador's government has allocated to it. Ortiz-Bollin added that a lack of coordination on policy decisions in Mexico has rattled investors' confidence in the country, the wire service reported. "We believe that there is some lack of economic rationality in government policy decisions, in particular in relation to Pemex," she said. Ratings agencies have criticized the López Obrador government's funding priorities for the state oil company. López Obrador, who took office last December, has increased Pemex's budget in order to discover and exploit new oil and gas fields. However, the government has also allocated large amounts of money to the company's oil refining business, which loses money, in an effort to produce more gasoline in Mexico and lower the country's level of fuel imports. In June, Fitch Ratings downgraded its rating for Pemex's debt to junk status, and a similar move by a second ratings agency would lead to forced selling of billions of dollars' worth of bonds. López Obrador has said his administration will provide Pemex with as much funding as it needs, and he has advocated spending cuts in order to dedicate more money to the company. Last week, a senior Mexican government official said López Obrador is likely to allow Pemex to again enter joint ventures with the private sector, the Financial Times reported. López Obrador is also planning to revive exploration by private companies in deep waters of the Gulf of Mexico, the official told the newspaper. [Editor's note: See related **Q&A** in the April 12 issue of the Energy Advisor.]

Mexico Reportedly Close to Carrying Out Annual Oil Hedging

The Mexican government is close to carrying out its annual oil hedging oil program on Wall Street, Reuters reported Aug. 30, citing three people familiar with the matter, following volatility in oil prices and changes to maritime fuel regulations that will come into effect next year. Mexico in past years has spent more than $1 billion on financial contracts to protect revenue from oil sales against price volatility, a move that investment banks highly anticipate. However, there has been some debate within the administration of Mexican President Andrés López Obrador over the program. "There is an analysis of past years, of what it cost. You could think it's too much money [for a hedge] that you may not use," a government official told the Financial Times last week. Despite the internal debate, the official said that "what seems to be winning is that we will go ahead with it." Two unnamed investment sources and one Mexican government official also told Reuters that talks between banks and Mexico's finance ministry had recently intensified, with hedge transactions possible as soon as this week, one source said. The finance ministry did not immediately respond to the wire service's request for comment. "The revenues from oil sales remain very important for Mexico," the official told Reuters. "We cannot get to a point where we do not have the necessary protection of the oil hedge." He added that oil makes up some 20 percent of the country's budget.

RENEWABLES NEWS

Brazil Wants to Boost Ethanol Exports to China: Sources

Brazil's ethanol industry is seeking to expand its exports to China as the Asian country looks to establish by 2020 a minimum 10 percent

NEWS BRIEFS

Guaidó Team in Informal Talks With Fund Manager on PDVSA Bond: Source

T. Rowe Price has engaged in informal talks with advisors to Venezuelan opposition leader Juan Guaidó over the financing of a $913 million payment on Venezuelan state oil firm PDVSA's 2020 bond, Reuters reported Aug. 29, citing an executive at the U.S. fund manager. However, the plan would only work if Washington modifies its sanctions on Venezuela, the unnamed source added.

Guyana Receives First FPSO Vessel Ahead of 2020 Production Launch

Guyana has received its first floating, production, storage and offloading, or FPSO, unit ahead of ExxonMobil's production launch in March of next year, Argus Media reported Monday. The vessel is stationed at the deepwater Stabroek block where Exxon is set to begin the first phase of development from its Liza field. The U.S. company estimates Stabroek will produce 750,000 barrels per day by 2025, according to the report. [Editor's note: See related **Q&A** in the May 10 issue of the Energy Advisor.]

Canadian Solar Closes Financing for Two Brazil Power Plants

Solar photovoltaic manufacturer Canadian Solar has closed a non-recourse project financing of 487 million reais ($120 million) for two of its solar power projects in Brazil, Power Technology reported Aug. 30. The Guelph-based company reached a deal with Banco do Nordeste do Brasil, or BNB, for it to fund the 114.3 megawatt-peak (MWp) Francisco Sa plant and 112.4 MWp Jaiba plant during the construction and operation phases over a 23-year period. Construction is expected to begin in the fourth quarter of this year, and they are set to begin operations in 2021.

blend in gasoline in an effort to improve air quality, Reuters reported Aug. 30, citing people following the matter. Brazilian ethanol industry representatives were part of a trade mission organized by the São Paulo state government that visited China in August. The mission's schedule included a visit to the headquarters of commodities trader COFCO, which owns four ethanol plants in Brazil, the wire service reported. Felipe Vicchiato, chief financial officer for Brazilian ethanol producer São Martinho, said Chinese officials appeared to be serious about the 10 percent ethanol plan. However, a source at COFCO told Reuters it was unlikely China would implement a nationwide blend by next year. "Implementation has been slow ... E10 has been done only in some regions for now," the source said, asking not to be named because he lacked authorization to speak publicly about the matter. "There is also pressure from oil companies, so I don't think it is going to happen," he added, Reuters reported.

POWER SECTOR NEWS

Electricaribe to Be Handed Over in First Half of Next Year

Colombian electric power distributor Electricaribe will be handed over to its buyer in the first half of next year, most likely in March or April, following delays to the schedule for the company's sale, according to Colombia's government, El Universal reported Aug. 29. The tender was originally scheduled for September, but now it will be held in December, the administration of President Iván Duque announced, El Heraldo reported. "The government's wish is that those who are interested correctly value Electricaribe's assets, so that they can make an offer for one of the two units that are up for auction, or the whole company," said the head of the public service regulator, Natasha Avendaño, adding that it was essential for the government to define who the winners will be by the end of this year, El Universal reported. The delays sparked concern among residents of Colom-

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energy consumption matrix is made up of 76 percent fossil fuels, while electricity makes up 17 percent. Ecuador's big problem lies in its transportation sector, which consumes half of the country's total energy. There is a great challenge in terms of diversification of our general energy matrix, not just the electrical matrix. The announced projects of solar PV—El Aromo, with 200 megawatts (MW)—and wind—Villonaco II and III, with 110 MW—contribute to the electricity sector, but it is more urgent to plan strategies for development of renewable energy in other sectors. There is significant potential for bioenergy for fuel destined for transportation and medium-temperature solar concentration, which can replace diesel in the industry. Finally, we must tend toward electrification in all sectors, for which the electric potential for geothermal energy (900 MW), wind (884 MW), centralized PV (18 GW), residual biomass (730 MW), urban waste (70 MW) and a remaining techno-economic and environmental potential of 13-GW hydroelectric plants, can help."

A **Carlos St. James, board member of the Latin American and Caribbean Council on Renewable Energy (LAC-CORE):** "Last week, LAC-CORE took a group of international renewable energy investors to meet with energy ministry and off-taker officials to discuss the new tender's structure. Ecuador is not short on power generation assets; in fact, it has too much hydro capacity. Last month, for example, 90 percent of power generated came from that source. Given climate change, the country is at severe risk of droughts. So, the motivation for the tenders isn't about being greener or even adding installed capacity: it is about diversifying the energy matrix to reduce risk. Lenders were also invited but, 1.) commercial banks will not lend in Ecuador under the current structure and were absent; 2.) development banks, which would be expected to lead the charge under the newly pro-Western government were also absent, perhaps significant in itself; and 3.) it seems export credit agencies are likely have to do most of the heavy lifting here since their mandate goes beyond simply earning interest. But it will be an uphill battle. The projects being offered were developed and are owned by the government and by law must remain that way; this auction is structured as long-term concessions. After the unusually long power purchase agreements expire, they'll return to government hands. The government demonstrated very solid technical expertise and considerable willingness to listen to the battle-hardened investors. Investors, meanwhile, showed healthy skepticism. Unfortunately, the weakest link wasn't so much the lack of financing, but rather Ecuador's inexperience in market mechanisms. While it might have been wiser to replicate a successful model, such as Argentina's RenovAr program with features like soft guarantees from the World Bank, the government chose to go at it alone, and there are outstanding issues such as timelines, guarantees, priority dispatch, termination clauses and lenders' rights that are significant and need to be addressed for this important auction to ultimately succeed."

> **"Ecuador is not short on power generation assets; in fact, it has too much hydro capacity."**
> **— Carlos St. James**

A **Eduardo Rosero Rhea, president of the Ecuadorean Association of Renewable Energies and Energy Efficiency (AEEREE):** "The Ecuadorean government's intention is to encourage national and international private investment in strategic sectors such as renewable energy generation, a sector that

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bia's Caribbean coast, where Electricaribe operates, and among unions in the region. "The seven departments that Electricaribe must serve represent up to 25 percent of Colombia's total demand," Leopoldo Olavarria, partner and head of energy in Latin America at Norton Rose Fulbright, told the Advisor earlier this year. Adding, "the biggest challenge that a new provider will face is the theft of electricity." [Editor's note: See related Q&A in the April 19 issue of the Energy Advisor.]

POLITICAL NEWS

Death Toll From Dorian Rises to 20 in Bahamas

The death toll in the Bahamas from Hurricane Dorian increased sharply to 20 people on Wednesday, and the number is expected to continue rising, as the storm regained Category 3 "major" hurricane status as it heads toward North Carolina and South Carolina in the United States, NBC News reported. "We've had an absolute horrendous tragedy, numbers of lives lost, and we have not completed the door-to-door," Bahamas Health Minister Duane Sand told NBC News. In a nationwide address on Wednesday night, Bahamas Prime Minister Hubert Minnis said Dorian had left "generational devastation across Abaco and Grand Bahama," the islands where the hurricane remained stationary for days, stripping the roofs off homes, pounding trees and flooding streets. Minnis said U.S. President Donald Trump had vowed support for the Caribbean nation. Earlier on Wednesday, Trump said he had sent U.S. Coast Guard personnel to the Bahamas to provide humanitarian relief. The storm, which had been downgraded to Category 2, was reclassified as Category 3 late on Wednesday when maximum sustained winds reached 115 miles per hour. As of 8 a.m. Thursday, Dorian was located some 100 miles south of Charleston, S.C., where flooding may surpass 10 feet, just two feet shy of the record Hurricane Hugo set three decades ago, CNN reported. Around 200,000 customers in Georgia and South Carolina had

THE DIALOGUE CONTINUES

What's Behind the Energy Deal Scandal That Swept Paraguay?

Q Paraguayan Foreign Minister Luis Castiglioni and other officials, including the head of state power company Ande, resigned last month amid a public outcry over the signing of an energy deal with Brazil in relation to Itaipú—one of the world's largest hydropower plants, which the countries jointly manage. Paraguayan lawmakers and officials said the secret deal would be detrimental to Paraguay and cost the country some $200 million. Following the scandal, the two countries scrapped the deal. What is at the heart of the controversy, and what effects will it have on Paraguayan President Mario Abdo Benítez's agenda? What did the energy deal consist of, and was it indeed unfavorable to Paraguay? How important is Itaipú for each country, and should Brazil and Paraguay work to integrate their power sectors more? To what extent does hydropower dominate Paraguay's energy mix, and should it look toward diversifying it with other sources of power?

A Donald Richards, professor of economics at Indiana State University: "The scandal over the recent (aborted) binational energy deal between Paraguay and Brazil falls into the 'more things change, the more they remain the same' category. Corruption and lack of transparency have been the rule rather than the exception governing bilateral deals involving the giant Itaipú project since its construction in the early 1970s. Paraguay negotiated a bad deal with Brazil in the beginning when it agreed to export the bulk of its share of the energy at well below market rates for decades. The recently proposed bilateral act that led to calls for President Abdo Benítez's impeachment was carried out in a similarly non-transparent and possibly corrupt process. This process would have denied Paraguay the opportunity to capture the full value of its share of the resource in a competitive market while also raising the price Paraguayans must pay for power generated by the facility. What's different this time is that the Paraguayan public does not appear ready to tolerate these sorts of shenanigans. That's the good news. The more troubling news is that unless Paraguay is able to capture the full value of its patrimony, it is unlikely to develop enough industrially to make direct use of its share of Itaipú's generating capacity. And this would amount to a real tragedy for the nation. In fact, Ande, Paraguay's national electric energy authority, had developed a plan that would entail much more intensive use of Itaipú's power by Paraguay, but this plan was also jettisoned by the secret deal cut between Abdo Benítez's government and the Bolsonaro administration in Brazil. The ability to implement such a plan could in principle position Paraguay as a model of clean, renewable energy development. The loss of this opportunity is a loss for us all."

> **"Corruption and lack of transparency have been the rule rather than the exception governing bilateral deals involving the giant Itapú project."**
> — Donald Richards

EDITOR'S NOTE: The comment above is a continuation of the Q&A published in the Aug. 16 issue of the Energy Advisor.

NEWS BRIEFS

Former Honduran First Lady Sentenced to 58 Years

Former Honduran First Lady Rosa Elena Bonilla, wife of former President Porfirio Lobo, was sentenced on Wednesday to 58 years in jail for fraud and undue appropriation of funds, a spokesman for Honduras' highest court said, Reuters reported. Bonilla's attorney said she was innocent, adding that an appeal would be filed with the country's Supreme Court. Bonilla is accused of misusing some $779,000 from international donations and public funds, which were meant for social programs.

Ambush by Drug Gang Kills Four Colombian Soldiers

Four Colombian soldiers were killed, and two officers were wounded on Tuesday when they were attacked during an operation to protect rural peasants, the army said, blaming the ambush on the Gulf Clan, the Associated Press reported Tuesday. The drug gang, whose forces have grown since the government and the former Revolutionary Armed Forces of Colombia, or FARC, rebel group reached a peace deal in 2016, has been fighting for control of a drug-smuggling route near the western Colombian town of Caucasia.

Argentine Government Announces Minimum Wage Increase

Argentina's government announced Tuesday that it will increase the country's minimum wage by 35 percent over the next three months, Bloomberg News reported. The move will hike the monthly minimum wage from 12,500 pesos ($215) to 16,875 pesos. The move follows a rout of the peso after Peronist presidential candidate Alberto Fernández trounced President Mauricio Macri in the country's primary. [Editor's note: See related **Q&A** in Tuesday's daily Latin America Advisor.]

reported power outages in their homes as of 7:30 a.m. Thursday, according to poweroutage.us. [Editor's note: See related **Q&A** in the July 15 issue of the daily Latin America Advisor.]

Guatemala Declares State of Siege After Soldiers' Deaths

Guatemala's government on Wednesday declared a state of siege in six northeastern provinces after suspected drug traffickers killed three soldiers, Prensa Libre reported. The state of siege, which is to remain in place for 30 days, was made official just hours after the bodies of three soldiers were found in Izabal Province, with the government saying their deaths have put at risk the liberty, justice, security, life, peace and development of the people there. The imposed measure sets a curfew, prohibits demonstrations and makes it easier for the armed forces to detain people, Reuters reported. Though the state of siege is already being enforced, the Guatemalan government gave Congress three days to approve the measure, Prensa Libre reported. Additionally, authorities will send more military and police personnel to the provinces of Alta Verapaz, El Progreso, Izabal, Petén and Zacapa, where a drug-trafficking route passes through Guatemala, connecting Honduras and Mexico. The Guatemalan army said a group of suspected drug traffickers on Tuesday "ambushed" nine soldiers who had been sent to detain a jet plane allegedly transporting drugs, the wire service reported. "These criminal groups operate throughout the region," President Jimmy Morales said at a news conference.

Pentagon Frees $3.6 Billion for Border Wall Construction

U.S. Defense Secretary Mark Esper on Tuesday authorized freeing up $3.6 billion in funding from military construction projects to instead build 175 miles of President Donald Trump's promised wall along the U.S.-Mexico border, the Associated Press reported. Pentagon officials did not say which 127 projects will be affected, though they said half of the money will come from projects in the United States, and the remainder will come from projects in other countries. In a letter to the Senate Armed Services Committee, Esper wrote that he has "determined 11 construction projects along the international border with Mexico, with an estimated total cost of $3.6 billion, are necessary to support the use of the armed forces in connection with the national emergency," CNN reported. The letter does not include the world "wall," but it outlines how the money will be diverted toward new fencing projects at various border locations, according to the report. Pentagon comptroller Elaine McCusker said the now-unfunded projects are simply being "deferred," not canceled, but there is no guarantee from Congress that the money will be replaced, the AP reported. "It is a slap in the face to the members of the Armed Forces who serve our country that President Trump is willing to cannibalize already allocated military funding to boost his own ego and for a wall he promised Mexico would pay to build," Senate Minority Leader Chuck Schumer (D-N.Y.) said. The American Civil Liberties Union announced on Tuesday it would seek to block the funds

ECONOMIC NEWS

Brazilian Senate Committee Approves Pension Reform

The Brazilian Senate's constitutional affairs committee on Wednesday passed a bill to overhaul the pension system with a vote of 18-7, the latest sign that President Jair Bolsonaro's key economic reform will be easily approved in the full Senate before he signs it into law, Reuters reported. The proposed bill, which investors are watching closely, would save the federal government some 1 trillion reais ($243 billion) over the next decade, according to the report. [Editor's note: See related **Q&A** in the March 14 issue of the daily Latin America Advisor.]

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is considered a priority. For this purpose, the government has designed a series of tax incentives, such as income tax exemptions and advanced payment for a period of 12 years. In the case of the photovoltaic project, the Aromo in Manabí could extend this benefit for up to 15 years. Another important point to highlight is the strengthening of concession contracts with the possibility of dispute resolution through instances of regional arbitration, an option that until recently was not an integral part of the contracts signed by the Ecuadorean state. Electricity generation from renewable energy reaches 80-85 percent, considering the large hydroelectric projects that have been incorporated during the last decade. However, the growth trend in demand determines the incorporation of renewable energy projects whose generation is complementary and economically feasible, with respect to thermal power generation, which is expensive. Since last October, the government issued Regulation No. 003/18, which authorizes the new installations of photovoltaic micro generators for self-consumption in residential, commercial and industrial sectors, determining the requirements and procedures for measuring energy in a net energy scheme. Since last year, the government issued a regulation that determines the conditions for producing energy from waste, and another that allows the private sector to propose renewable energy projects for distributed generation and thus contribute to an effective reinforcement of distribution and subtransmission networks."

A **Paulina Durango, infrastructure and energy partner at APREC Abogados in Quito:** "Ecuador seeks to attract private investment that promotes technological innovation, a change in its energy matrix and job creation. In fact, through its public selection processes of the 200-megawatt El Aromo PV project in Manabí and Villonaco II and III (45 MW and 56 MW, respectively) in Loja, it is strengthening a legal framework that brings legal certainty and confidence to investors. There will be three separate rounds, and the selected company will be the one that offers the most energy at the lowest cost. It will design, finance, construct, operate, maintain and deliver electricity through BOT and PPA contracts. Politics and laws are not enough to build trust—there is a complex long-term environment, and unfortunately the path has not been easy for Ecuador. Having the dollar as currency helps a lot. Incentives for private investors are primarily fiscal: first, income tax exemptions for 15 years at Manabí and 12 years at Loja, starting in the first year as long as there is new investment and net job creation; and second, exemption from ISD foreign exchange tax for import of capital goods, raw materials, financing, dividends and payments for purchase of shares with the signing of investment contracts. According to the electricity regulator, ARCOTEL, so far in 2019, of the effective power generation, 64.95 percent is renewable—62.59 percent is hydraulic, 0.26 percent is wind, 0.33 percent is photovoltaic, 1.69 percent is biomass and 0.08 percent is biogas. The biggest efforts have been made in hydroelectric projects, and I believe there is a significant potential for expansion, as demand for energy use is constantly growing. Ecuador has changed course and now sees private investors as necessary and irreplaceable allies. We expect several complementary measures in the labor, environmental and productive fields, and these projects are a good opportunity."

> **"Ecuador has changed course and now sees private investors as necessary and irreplaceable allies."**
> — Paulina Durango

The Advisor welcomes comments on its Q&A section. Readers can write editor Gene Kuleta at gkuleta@thedialogue.org.

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