LATIN AMERICA ADVISOR

ENERGY ADVISOR

A WEEKLY PUBLICATION OF THE DIALOGUE

www.thedialogue.org

June 21, 2019

FEATURED Q&A

How Will Digital Technologies Boost the Power Sector?

Argentina's electricity sector is adopting digital technologies to reduce nontechnical losses, such as theft, and improve service quality, Andrés Chambouleyron writes below. // File Photo: Argentine Government.

Q **Digital technologies could help boost efficiency and resiliency of power grids and "unlock innovation that will create new sources of revenue," professional services firm EY said in a report published last month. How are governments and companies in the region integrating digital technologies in the power sector, and should it be an investment priority? What are the most significant ways in which Latin American nations can benefit from the digitalization of their power grids? What kinds of challenges should countries be prepared to face during and after the digital transformation, especially in terms of cybersecurity? What role can digital technologies play in the region's transition toward renewable energy?**

A **Andrés Chambouleyron, chairman of ENRE, Argentina's federal electricity regulatory authority:** "Digital technologies are being adopted throughout the electricity sector in Argentina. Distribution companies are deploying digital meters to reduce nontechnical losses, such as theft, and improve service quality by reducing both the frequency and duration of service interruptions. With digital technologies, both distribution and transmission companies can now learn exactly when and where the faults occurred and proceed to repair them more quickly. Digital technologies can also help distribution companies reduce electricity theft by allowing them to better monitor demand, quickly detecting load unbalances in the low-voltage grid. The massive adoption of distributed generation by more and more families will also require digital technologies to deal with bidirectional electricity flows and real-time pricing, demand side management (DSM) and storage. The de-

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TOP NEWS

OIL & GAS

Malfunction in Transmission Line Plunges Argentina Into Darkness

A failure in a transmission line in northeastern Argentina left millions without power on Sunday.

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OIL & GAS

Petrobras Makes Largest Discovery of Gas Since 2006

Brazilian state oil company Petrobras confirmed it had discovered natural gas in the Sergipe basin that amounts to the equivalent of one-third of Brazil's current production.

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OIL & GAS

Chile's Piñera Taps Jobet as New Energy Minister

Chilean President Sebastián Piñera announced a cabinet shakeup as his approval rating plummeted to 25 percent, replacing former Energy Minister Susana Jiménez with Juan Carlos Jobet, a former minister of labor and social welfare.

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Jobet // File Photo: Chilean Government.

OIL AND GAS NEWS

Failure in Argentine Transmission Line Sparks Blackout

Overconfidence in the capacity of a single transmission line may have played a role in the massive power outage that plunged Argentina, Uruguay and parts of Paraguay into darkness on Sunday, experts said Wednesday, the Associated Press reported. An initial investigation has shown that a first failure occurred on a stretch of a transmission line in northeastern Argentina known as Colonia Elia y Mercedes, an incident that was successfully isolated. Seconds later, the anomaly reoccurred in the Colonia Elia-Belgrano stretch in the city of Campana, resulting in the shutdown of the entire grid and leaving tens of millions of people without power. The transmission line had replaced another that had been out of service since April while a high-voltage transmission tower was being repaired, with a bypass installed to keep the system running in the meantime, the AP reported. Electricity from the Yacyretá and Salto Grande hydroelectric plant utilized the working line that failed. "It seems to me that perhaps it was a bit imprudent to put so much energy from those two plants on a single line with no back-up," former Energy Secretary Emilio Apud told the Associated Press. The Argentine government has identified at least four failures in the electrical system that contributed both to the blackout itself and to complications in the process of restoring power, including the lack of a back-up transmission line, Clarín reported Monday. Some 50 million people were affected by the blackout, which began at around 7 a.m. local time on Sunday, leaving streets deserted, shutting down public transport and forcing businesses to close on Father's Day. Argentines in the provinces of Santa Fe, San Luis and Formosa had to use lights on their cellphones to cast their votes in regional elections. Energy Secretary Gustavo Lopetegui said the outage "shouldn't have happened" because "the Argentine system is pretty robust," NPR reported. On a scale "of zero to 10, there is zero possibility of this being repeated," he added. The Wholesale Electricity Market Management Company, or Cammesa, is to conduct an official study to determine the exact causes of the grid failures within the next 15 days, Lopetegui said, EFE reported.

Chile's Piñera Taps New Energy Minister in Cabinet Shuffle

In his second cabinet shake-up since taking office, Chilean President Sebastián Piñera on June 13 appointed Juan Carlos Jobet as the country's new energy minister, Agence France-Presse reported. Jobet, who served as labor and social welfare minister from 2013 to 2014 during Piñera's first term as president, replaced Susana Jiménez. He was previously Piñera's deputy housing minister. Most recently, he was the head of the state-run Infrastructure Fund, which is designed to develop public infrastructure projects. Jobet is a commercial engineer and has one master's degree in business administration and another in public administration, according to the energy ministry's website. The announcement followed the release of a new survey by pollster CEP that shows the president's approval rating plummeted 12 points to 25 percent. The country's recently sluggish economic growth has weighed on the president's popularity, according to a CEP spokesman. Piñera also announced changes in leadership at the ministries of foreign affairs, health, economy, public works and social development.

Petrobras Makes Largest Discovery of Gas Since 2006

Brazilian state oil company Petrobras on Monday confirmed in a regulatory filing that it has made natural gas discoveries in six deep-water fields in the Sergipe Basin, Reuters reported. It is Brazil's largest finding since the pre-salt discoveries in 2006, with a potential extraction of

NEWS BRIEFS

Petrobras Concludes Sale of Stake in TAG Pipeline for 33.5 Billion Reais

Brazilian state oil company Petrobras closed a deal to sell 90 percent of its stake in the Transportadora Associada de Gás, or TAG, pipeline to a consortium composed of Engie and Canadian fund Caisse de Dépôt du Québec, or CDPQ, for 33.5 billion reais ($8.7 billion), Petrobras said in a statement. The Brazilian company will continue using TAG's natural gas transportation services. [Editor's note: See related **Q&A** in last week's Energy Advisor.]

Bolivian Gov't Signs Deal to Evaluate Natural Gas Sales to Peruvian Firms

The Bolivian government has signed an agreement with Peruvian electricity firm Kallpa and France's Engie to evaluate the sale of natural gas given the Peruvian mining sector's growing demand for electricity, Reuters reported Monday. Kallpa and Engie each have an electric plant in southern Peru. Earlier this year, Bolivia and Peru had agreed to evaluate the possible construction of a gas pipeline from La Paz to a Peruvian port on the Pacific Ocean. [Editor's note: See related **Q&A** in the Feb. 8 issue of the Energy Advisor.]

Peña Nieto Investigated in Pemex Corruption Case

U.S. authorities are conducting a probe into allegations that former Mexican President Enrique Peña Nieto was involved in a bribery scheme in connection with state oil company Pemex, Animal Político reported Tuesday. A witness reportedly said under oath that Peña Nieto received bribes in exchange for Pemex to buy a fertilizer plant for more than it was worth in 2015. A Mexican judge this week lifted then-CEO of Pemex Emilio Lozoya's protection from arrest. Both Peña Nieto and Lozoya have denied the accusations.

as much as 20 million cubic meters of natural gas per day, or the equivalent to one-third of total Brazilian production, according to O Estado de São Paulo. The finding is expected to bring some 7 billion reais ($1.8) in annual revenue for Petrobras and member companies, according to Gas Energy estimates. In its evaluation of the discoveries, the government said this may be the "cheap energy shock" that Economy Minister Paulo Guedes expected, which could cut natural gas costs in half and "reindustrialize" the country, The Rio Times reported. In addition to the six Petrobras fields, the National Petroleum, Natural Gas and Biofuels Agency, or ANP, believes there are other nearby areas that may result in important new discoveries in the coming years. The state company said it is now looking at budget plans to finance production of wells that were recently discovered, Reuters reported.

Jamaica Rejects Request Not to Seize Refinery Shares

Jamaica's government has rejected a request by the ad-hoc board of Venezuelan state oil company PDVSA, which opposition leader Juan Guaidó appointed, not to seize the firm's shares in the Petrojam oil refinery on the Caribbean island, Jamaican Foreign Minister Kamina Johnson Smith said, Argus Media reported Tuesday. Jamaica's Senate in February passed legislation paving the way for the government to acquire PDVSA's 49-percent stake in Petrojam, saying the Venezuelan firm had reneged for years on a plan to upgrade the facility's processing capacity from 35,000 barrels of crude per day (bpd) to 50,000 bpd, which hurt the plant's economic viability, according to the report. PDVSA had acquired its share in Petrojam under then-President Hugo Chávez in 2006, Reuters reported. PDVSA's ad-hoc board and Guaidó himself, who in January invoked the Constitution to declare himself Venezuela's interim president, had reportedly asked Jamaican Prime Minister Andrew Holness to suspend the refinery's expropriation process. "Jamaica now owns the shares in Petrojam in their

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ployment of renewable sources of electricity are also demanding that system operators adopt digital technologies to deal with intermittence. Solar and wind generation call for accurate coordination of different generating sources to accommodate in and out ramps in order to maintain network stability while at the same time minimizing generation costs. This coordination in turn requires system operators to be able to run precise weather forecasts to simulate day-ahead dispatch operations accommodating the entry and exit of wind and solar plants, while simultaneously allowing the exit and entry of traditional generation thus keeping load constant. In sum, the adoption of renewable (intermittent) sources of electricity and distributed generation and storage by more and more families would be impossible without the intensive use of digital technologies."

A **R. Kirk Sherr, member of the Energy Advisor board and president of Clearview Strategy Group:** "The speed of change in the power industry is wreaking havoc on traditional utility models worldwide, and Latin America is no exception. Energy and information no longer flow in just one direction. Digital technologies, the Internet of Things, renewable energy, battery storage and the electrification of transportation now allow infinitely complex combinations of energy and information delivery between customers and utilities. Implemented more broadly in the Americas, these smart digital systems will bring myriad benefits. Examples include improved system efficiency, new revenue streams and lower costs for small farmers and micro-producers that can install solar or wind systems, decreased corruption, less power theft and greener electric systems that help meet Paris Agreement targets. Digital adoption is critical in the building space, since buildings account for some 40 percent of global energy consumption. Application of digital systems in buildings alone would provide significant power savings in highly urbanized Latin America. At least four major challenges need to be overcome for successful adoption of digital technologies. First, regulatory and legal rules must be updated. Second, governments need to work closely with the private sector on cybersecurity, ideally creating a commission or task force as Europe has, to address these issues on a regional basis. Third, new financing structures are essential—especially those focused on smaller renewable energy projects. Finally, educational and technical training programs must be expanded. For Latin America to realize the benefits from digital technologies, the region must be able to produce the educated workers needed to design, install and maintain the systems."

> **"At least four major challenges need to be overcome for successful adoption of digital technologies."**
>
> **— R. Kirk Sherr**

A **Cecilia Aguillón, director of the energy transition initiative at the Institute of the Americas:** "Investments to date in technologies such as supervisory control and data acquisition (SCADA), smart meters and an increasing reliance on the so-called Internet of Things (IoT) have already demonstrated that companies view them as priorities. Indeed, the popularity and embrace of these and many other technologies throughout the Americas underscores that digitalization of the power sector is already a reality. From Mexico to Brazil to Argentina to Peru, electricity providers have been installing smart meters at homes and businesses. In addition, IoT tools are available through Internet applications, mobile phones and cable providers. These technologies help consumers and grid operators manage electricity

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entirety," Johnson Smith said, Argus Media reported. "We passed legislation in order to give this effect. It was not a negotiated agreement … So there is no question about completing a transaction," she added.

ECONOMIC NEWS

Mexican Senate Ratifies USMCA

Mexico on Wednesday ratified the United States-Mexico-Canada Agreement, or USMCA, with its Senate voting 114-4 with three abstentions to approve the trade deal, The Wall Street Journal reported. The vote made Mexico the first of the three countries to ratify the successor accord to the North American Free Trade Agreement, or NAFTA. "Approved!

> **"Mexico takes the lead, with clear signs that our economy is open."**
>
> **— Jesús Seade**

Mexico takes the lead, with clear signs that our economy is open," Jesús Seade, Mexico's top trade negotiator, wrote in a posting on Twitter. "We are confident that our partners will soon do the same for the sake of a strong North America, with clear rules, attractive for investment, stable and competitive." U.S. President Donald Trump praised Mexico's ratification of the accord and tweeted, "Time for Congress to do the same here!" U.S. Trade Representative Robert Lighthizer said Mexico's ratification of the pact was a "crucial step forward." Trump, Canadian Prime Minister Justin Trudeau and then-Mexican President Enrique Peña Nieto signed the USMCA last November. Canada and Mexico began the process of legislative approval for the deal in May after coming to an agreement with the United States to end a dispute over steel and aluminum tariffs. Some of the biggest challenges to the accord may be from the U.S. Congress, where House Speaker Nancy Pelosi (D-Calif.) has expressed concerns about the pact and wants assurances that Mexico will enforce labor rules so that lower costs for labor will not lead companies to move jobs from the United States to Mexico, The Wall Street Journal reported. The trade deal is also expected to win passage in Canada, where Trudeau's government has a majority in Parliament. Canadian Foreign Minister Chrystia Freeland told reporters last week in Washington that Canada plans to move "in tandem" with the United States in ratifying the deal, The New York Times reported. [Editor's note: See related Q&A in the Feb. 20 issue of the daily Latin America Advisor.]

ADVISOR Q&A

Does Chile Have the Right Plan on Climate Change?

Q Chile has pledged to eliminate coal-powered electricity by 2040, with the aim of reducing the country's greenhouse gas emissions, President Sebastián Piñera said this month. The initiative involves Chile's main power generators and would gradually eliminate nearly 30 coal power plants that currently operate in the country. Piñera's remarks followed Finance Minister Felipe Larraín's announcement that Chile is preparing to issue a sovereign green bond this year with the aim of raising as much as $1.5 billion to support spending on "green" projects. Are Chile's proposals the right measures to mitigate the effects of climate change, and are they economically sound? How have businesses in the country reacted to the announcements, and what implications could the initiatives have on Chile's most critical economic sectors, such as mining? What will it take for Chile to meet its long-term goals?

A Sergio Bitar, nonresident senior fellow at the Inter-American Dialogue and president of Consejo Chileno de Prospectiva y Estrategia: "Chile lacks oil, gas and coal. Its comparative advantage is water, sun and some wind. Even so, 40 percent of its current electricity is coal- and oil-generated. Can Chile decarbonize its electricity matrix before 2050? It's possible. In 2015, it was announced that Chile had the goal of reaching 70-percent renewable energy by 2050. Four years later, the goal is reaching 75 percent by 2030. Why so much optimism? The energy policy that began in 2015 is bearing fruit. Between 2010 and 2018, oil-generated electricity fell from 17 percent to 1 percent, while renewable energy (excluding hydro) rose from 0 percent to 13 percent. Installed capacity in renewables will increase rapidly. Today, it's of 5,500 megawatts (of a total of 23,000 megawatts), and very soon it could surpass 15,000 megawatts. Imports of natural gas from Vaca Muerta, in Argentina, have quickly expanded, and if investment in Argentina continues, Chile could import more gas to displace coal. Two additional facts reinforce this trend. First, in 2019, the electrical system of the north—which has surpluses in solar energy—and that of the south-central zone—with a greater proportion of coal—will be connected. Second, the transformation of the public transportation system, which already has 200 electric buses, will soon grow thanks to the tender for Santiago's fleet. Optimism that the commitments of the COP-21 conference in Paris will be fulfilled, and of good results in the COP-25 in Chile in December, has risen."

EDITOR'S NOTE: More commentary on this topic appears in the June 14 issue of the Latin America Advisor.

NEWS BRIEFS

Mexico to Launch Job-Creation Program for El Salvador

Mexico's government plans to launch a new program to create jobs in El Salvador, which will be part of its Central America development plan, Mexican Foreign Minister Marcelo Ebrard said Wednesday, Reuters reported. The development plan is an effort to slow migrants from heading from Central America to the United States. U.S. President Donald Trump has pressured Mexico to stem the flow of migrants heading north.

Brazilian Central Bank Keeps Interest Rates Unchanged

The board of Brazil's central bank on Wednesday voted to keep its benchmark Selic interest rate unchanged at a record low of 6.5 percent, a decision that analysts widely expected, Bloomberg News reported. Policymakers have maintained borrowing costs steady for more than a year. In a statement, the board said progress on reforms, including a proposed pension overhaul that seeks to save nearly 1 trillion reais ($259.1 billion) over 10 years, is "essential" for a cut in structural interest rates and a sustainable economic recovery.

Argentina's Jobless Rate Increases to 10.1 Percent

Unemployment in Argentina reached 10.1 percent in the first quarter of this year, up from 9.1 percent during the same period last year, according to national statistics agency Indec, El País reported. It is the highest unemployment rate since 2006, with some 220,000 jobs lost since the economic recession began in April of last year. In the same period, economic activity fell 5.8 percent as compared to the January-March period a year ago, and underemployment rose to 11.8 percent, up two percentage points year-on-year.

POLITICAL NEWS

Nicaraguan Pro-Gov't Forces Committed Rights Abuses: HRW

Nicaragua's National Police and other pro-government forces killed more than 300 people and injured more than 2,000 in a crackdown against protesters that began in April of last year, according to a report Human Rights Watch released Wednesday. Police and armed pro-government groups also committed widespread abuses including extrajudicial executions against "largely unarmed" protesters, and detainees were subject to "electric shocks, severe beating, fingernail removal, asphyxiation and rape," the report said. They were also denied medical care, with government forces retaliating against doctors who sought to provide care, the Voice of America reported, citing the report. Prosecutions against hundreds of detainees have seriously violated due process and other fundamental rights, with anti-government protesters undergoing closed door trials and denied the right to confer privately with their lawyers, the report said. Around 62,000 Nicaraguans have fled their country since the crackdown began, according to the U.N. High Commissioner for Refugees. The government of President Daniel Ortega has accused the opposition of plotting a coup and protesters of instigating violence. According to the Office of the High Commission for Human Rights, by the end of the protests in August of last year, 22 police officers died in the context of the protests, Human Rights Watch said.

Guyanese Opposition Wants Early Elections Within Three Months

Guyana's opposition People's Progressive Party, or PPP, wants the early elections ordered by the Caribbean Court of Justice this week to be held within the next two to three months, RJR News reported Wednesday. The Trinidad-based Caribbean Court of Justice, or CCJ, on Tuesday ruled that the Guyanese National Assembly's no-confidence vote against the government of President David Granger last December was valid, ordering early elections to be held in the South American country. Granger, who accepted the court's decision, is waiting on a recommendation from the Guyana Elections Commission before setting a specific date, though he said on Tuesday that the vote would be held in late November in order to give the country's independent election body time to create a new registry of voters, Reuters reported. Bharrat Jagdeo, who heads the PPP, criticized the plan, saying the registry was not needed and that the Constitution states that general elections should be held within three months of a no-confidence motion, RJR News reported. Granger's government initially challenged the December no-confidence vote, in which one of his own coalition's lawmakers joined opposition legislators for a total of 33 votes against Granger. The government brought the decision to court, arguing that the PPP needed 34 votes to pass the motion, not the 33 that it received. [Editor's note: See related Q&A in the Jan. 14 issue of the daily Latin America Advisor.]

> **President David Granger said the election would be scheduled for November.**

Mexico's López Obrador Proposes Recall Referendum

Mexican President Andrés Manuel López Obrador on Tuesday proposed holding a referendum on his presidential mandate on March 21, 2021, if Congress does not pass a constitutional change allowing the vote during midterm legislative elections, Reuters reported. López Obrador had promised to give the public the chance to vote him out halfway through his six-year term, but his proposal has met resistance in the Senate from opposition legislators concerned about its implications.

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demand and supply remotely, seamlessly and cost-effectively throughout the world. Investments in these technologies are made by the private sector, as costs are typically included in the power purchase agreements from large-scale projects. Consumers of distributed generation technologies invest in solar, batteries and IoT products to reduce their electricity costs. With surging technology-dependent systems and the reliance on remote data and digitalization have come growing concerns over security. In some cases, cyberattacks and threats are merely financial—that is, extortion—while others seek to leverage political agendas. However, just as smartphone and computer users manage to fend off myriad viruses and malware daily, new technologies are being used to safeguard the grid. Mature markets such as the United States have developed policies and technologies to deal with cyber-threats and offer important lessons learned for government and industry alike across the region. Investments in security technologies and know-how can help governments keep their grids safe while growing their renewable energy markets."

A **Virginia Snyder, infrastructure and energy specialist at the Inter-American Development Bank:** "The digital transformation of the energy sector should place citizens at the center, and for that reason, there must be a cultural transformation that goes hand-in-hand with innovation and digitalization. To benefit from this transformation, policymakers and regulators should transform their mindset in two fundamental ways: first, making consumers the active players; and second, being able to continuously adapt in a context of innovation policy and regulation. Energy services to improve people's lives should come to the center of policies. Governments and businesses must rethink how they serve citizens and make sure they are able to provide the best regulation, policies and services so that citizens can benefit from all the potential of digital technologies. Governments must show leadership on this matter and encourage the public and private sectors to prioritize, invest and embrace digital technologies. The revolution is happening fast—let's just imagine what will happen when the off-grid PV reaches cost and performance parity with grid connected energy, or when the EVs reach price parity with combustion vehicles, or when the cost of generating and storing onsite is cheaper than transporting the electricity from a generation site. Government and utilities must find the upside of this imminent transition by capturing new opportunities across the evolving value chain. Additionally, governments should raise awareness on the importance of proactive cyber defense and take measures to prevent cyberattacks on their power grids and mitigate the potential harm should preventive efforts fail. Finally, but not less important, we all need to make sure that the most vulnerable citizens are not left behind, and we must work together to bring the best solutions; for instance, to achieve universal energy access to energy and affordability, or access to clean fuels and technologies for cooking, or to reduce technical and nontechnical losses. The digital revolution should improve everyone's lives. The IDB works closely with governments in LAC and is currently working to understand and analyze the innovation gap in the electricity sector in the region through an assessment and benchmark study on the innovation gap."

> **The digital revolution should improve everyone's lives."**
> — Virgina Snyder

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

LATIN AMERICA ENERGY ADVISOR
is published weekly by the Inter-American Dialogue

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Latin America Energy Advisor is published weekly, with the exception of some major U.S. holidays, by the Inter-American Dialogue
1155 15th Street NW, Suite 800
Washington, DC 20005 **Phone:** 202-822-9002
www.thedialogue.org
ISSN 2163-7962

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