

# Latin America's emerging sectors: A closer look at fintech and renewable energy



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# About this research

*Latin America's emerging sectors: A closer look at fintech and renewable energy* is an Economist Intelligence Unit report, sponsored by Dubai Chamber of Commerce and Industry. This report explores high potential emerging economic sectors in Latin America, focusing on financial technology (fintech) and renewable energy. We review the factors driving growth in these sectors and key impediments to further growth.

This report is based on extensive desk research and in-depth interviews with entrepreneurs and regional experts in Latin America and the Caribbean (LAC). The interviews were conducted in December 2017 and January 2018.

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Our sincerest thanks go to the following participants (listed alphabetically) for their time and insights:

- **Jaime Ardila,**  
founder, Hawksbill Group
- **Bart Doyle,**  
general manager, Mainstream Renewable Power
- **Nicolas Shea,**  
founder and executive chairman, Cumplo
- **David Velez,**  
founder and CEO, Nubank

David Ramirez is the author of the report and Melanie Noronha is the editor.

# Executive summary

There is a strong consensus in the market that 2018 will be a better year than 2017 for LAC economies. Private demand is expected to bolster growth and a rebound in commodity prices will ease macroeconomic pressures. However, the region's ultimate performance hinges on a number of critical factors—one among them is the outcome of elections in the region's largest economies, including Brazil and Mexico. This, more than other factors, may prove to be a deterrent to foreign investors and an impediment to local business activity.

In this report, we review the economic landscape in LAC and explore two emerging sectors that have the potential to drive sustainable growth in the region—fintech and renewable energy.

Fintech provides new ways to engage a 633m-strong population, and thus drive private consumption and support other rising sectors such as e-commerce. Renewable energy is growing in its importance to meet the rising demand for electricity—it not only helps governments to achieve carbon emissions targets, but there is a strong economic case for it as a result of falling prices.

## Key findings of the report:

### **Emerging sectors such as fintech and renewable energy will be critical in driving productivity growth and attracting foreign direct investment (FDI) into LAC.**

Investment in automation and infrastructure will be needed to boost current subpar productivity in the region, particularly in the services sectors, and bolster overall competitiveness. Advances in financial technology are helping to improve productivity in the financial services sector, by allowing companies to reach more people cost effectively. Growth prospects for renewable energy are promising, as governments will expand capacity to meet renewable energy targets.



### **Fintech will continue to seize market share from financial sector incumbents as long as key challenges persist.**

Banking concentration in large markets such as Brazil is high and, as a result, there is no impetus to improve services and offer lower rates. A lack of transparency also results in asymmetries of information. Emerging fintech firms are disrupting the status quo—offering digital services, often with no associated fees, to those that were previously excluded from the formal financial system and providing investors with better information captured through their digital platforms. The most promising markets for fintech in the region are Mexico, Brazil and Chile.

### **Environmental conditions in LAC are conducive to renewable energy production, specifically solar and wind power, but financing remains a challenge.**

Many parts of Mexico, Brazil and Chile have strong irradiation levels for solar power generation, and Argentina and Brazil have wind resources that achieve higher-than-average capacity factors for wind power generation. Reforms may drive private investment in the sector, such as those ending the state monopoly of the sector in Mexico and initiatives such as RenovAr in Argentina.

# Chapter 1: Latin America: An economic review

Lacklustre economic growth has defined the Latin America story in the years following the end of the commodity boom. But with the start of the new year, there is renewed optimism around a gradual economic recovery for the region. At The Economist Intelligence Unit, we forecast average economic growth of 2% in 2018 and 2.4% in 2019<sup>1</sup>, following estimated growth of 1.2% in 2017, for LAC. Market players interviewed for this research concur: “2018 is going to be a better year for Latin America. I don’t think we’re going to go back to economic growth of 4% or 5% immediately, but I do see things beginning to stabilise, with most countries improving significantly in 2018 versus 2017,” says Jaime Ardila, a former executive vice-president for General Motors in Latin America and founder of Hawksbill Group, a consulting firm.

The economic recovery is expected on the back of a gradual pick-up in private consumption and investment, relative macroeconomic stability and a rebound in world commodity prices. The region today is also more stable in political terms, although experts do point to some countries where political uncertainties persist, such as Brazil and Mexico.

This does mean, however, that there are nuances in economic growth expectations and the factors shaping the economic outlook within the region. One reason for political uncertainty is upcoming elections in some of the largest economies, including Brazil, Mexico and Colombia. In Mexico, there is additional risk from unexpected policies from the current US administration that may adversely affect the country. For 2018 we forecast GDP growth of 1.9% in Mexico, compared with 3.4% in Argentina, 3.0% in Chile, 2.8% in Brazil and 2.5% in Colombia. Further reforms to improve legal systems and tackle corruption will strengthen their economic growth prospects.

A reason for optimism in the region is the 633m-strong population, which represents a sizeable potential for

sustained private demand growth, notably in services. In addition, LAC’s middle class is expected to rise from about a third of the population in 2010 to 42% by 2030.<sup>2</sup> This has been driving changes in LAC’s economic structure: according to World Bank data, services accounted for 68% of GDP in 2016, compared with 48% in 1986. In the region, Brazil’s services sector has the largest share of the national economy, at 73% of GDP.<sup>3</sup> By contrast, the share in other large LAC economies—such as Mexico, Argentina, Chile and Colombia—ranges between 60-65% of GDP.

Although the region will continue to rely on commodities and agriculture for economic growth, the substantial contribution of the services sector to GDP will mean that driving competitiveness in services will be vital to driving economic growth in LAC. Productivity has been subpar in

LAC on the whole, but particularly in the services sector.

According to a study by the McKinsey Global Institute, productivity<sup>4</sup> growth across all sectors was estimated at 0.6% between 2000 and 2015, compared with an average of 3.9% in developing countries around the world.<sup>5</sup> An analysis of productivity by sector (relative to the US) was above average in mining, professional services, construction and utilities, but below average in services like education and healthcare, and in agriculture.

Technological advances are creating new opportunities to increase productivity, but these will need to be supported by improvements in infrastructure—particularly transport and power—and access to finance. Both will need to attract considerable investment to develop further. For investors and policymakers to better understand these two facets, we explore the financial services sector (focusing on fintech) and the power sector (focusing on renewable energy) in the chapters that follow.



**Figure 1: Vital stats:**

Key economic indicators for selected countries in Latin America



**Key**

- Nominal GDP (US\$bn)
- GDP growth rate 2017 (%)
- GDP growth forecast 2018 (%)
- Population (millions)
- GDP per head (US\$ at PPP)

# Chapter 2: Fintech in Latin America

A transformation is under way in financial services around the world. Developments in fintech are making it possible to reach the masses and thus improve access to financial services. This, along with large unmet demand, is driving growth in this sector. According to the World Bank, 51% of the population in LAC has a bank account, compared with the global average of 62%.<sup>6</sup> Nearly half of the region's adult population is therefore a potential customer for the banking sector. Even among those with a bank account, it is reported that 35% never use it.<sup>7</sup>

The reasons for the low banking penetration rate and underutilisation of formal financial services are many. They include cumbersome procedures to open a bank account; high fees and transaction costs; and insufficient information to assess creditworthiness, resulting in high rates of interest. "The main reason for a high cost of capital is asymmetries of information," asserts Nicolas Shea, founder and executive chairman of Cumplo, a Chile-based cloud-lending platform. "No one really knows what the consolidated debt of any individual or company is." In Colombia, for example, the interest rate for a smaller firm can be three times that of a larger firm. Existing credit scoring agencies help identify extreme cases (a very good or bad borrower), he says, but "what you need is more precise information on everyone in between."

Furthermore, high concentration in the banking sector has resulted in little competition between banks and thus little incentive to improve services and offer lower rates to customers. "In Brazil, where five banks own 90% of all the

assets, there is no real competition," says David Velez, founder and CEO of Nubank, a Brazil-based platform that provides digital financial services through a smartphone app and customer support through social media. "It's an oligopoly, and as a result, Brazil has one of the highest interest rate spreads in the world." The financial spread<sup>8</sup> in Brazil can be as high as 1,800 basis points (bps), far exceeding 120 bps in countries like Uruguay.<sup>9</sup> "Only Malawi and Zimbabwe have higher spreads than Brazil, and that is a very big opportunity for financial technology companies to effectively offer products with lower rates, lower fees and a better customer experience," he says.

## The opportunity

At the heart of fintech is the smartphone. The region has one of the highest rates of smartphone penetration in the world, which facilitates the use of fintech services, especially among younger generations. According to a Pew Research Centre report, in 2015 Chile ranked 7th in the world in terms of adult ownership of a smartphone, with a 65% penetration rate.<sup>10</sup> Brazil and Argentina recorded rates of above 40% the same year. E-Marketer, a market research firm, forecasts that by the end of 2018, Brazil will lead smartphone usage in LAC in terms of population, with 72.5m users, followed by Mexico (57.9m), Colombia (22.6m) and Argentina (18.3m). Mobile-broadband subscriptions in the larger markets are also high. In the region, over two-thirds of the population in Costa Rica, Brazil, Uruguay and Argentina have a mobile-broadband subscription.<sup>11</sup>





**Figure 2: Mobile-broadband subscriptions**  
(per 100 inhabitants in LAC)

Costa Rica	95.5	Peru	36.7
Brazil	88.6	Ecuador	35.1
Uruguay	77.7	Bolivia	33.8
Argentina	67.3	Panama	32.7
Chile	57.6	El Salvador	19.9
Mexico	50.4	Honduras	17.2
Puerto Rico	48.7	Guatemala	10.1
Colombia	41	Nicaragua	7.2
Paraguay	39.2	Haiti	0.2



Source: World Bank TC360data

Mexico is the largest fintech market in LAC, with an estimated 200 fintech firms at end-2017, principally dedicated to payments, currency exchange and financing. By contrast, the number of fintech firms in other large LAC markets was estimated at 130 in Brazil, 77 in Colombia and 56 in Chile.<sup>12</sup> Experts predict that fintech firms could comprise 30% of the Mexican banking services industry within ten years.<sup>13</sup>

### **A new service offering**

Fintech firms have sprouted across LAC, offering solutions to key challenges in the region's financial sector. Cumplo offers a digital platform connecting investors and borrowers, often those who are not considered credit-worthy by formal financial institutions "We allow investors to decide directly who they are going to lend their money to, while borrowers, such as small businesses, can borrow money directly from a pool of investors," explains Cumplo founder Mr Shea. By connecting investors and borrowers, the model eliminates bank intermediation costs, allowing investors to charge lower rates to borrowers. Cumplo estimates this at 19-20% per annum (pa) for short-term financing (usually two months), compared with 30-36% pa charged by a bank. Over the past six years, over US\$300m worth of loans have been provided on their platform, he says.

Emerging fintech firms are providing digital financial services, including savings and credit products, to millions of people without access to formal financial services. One example is Nubank, which aims to reach the 60m people in Brazil who do not have a bank account but own smartphones and are active on social media. Nubank's founder, Mr Velez, explains that eliminating all service fees, including for money transfers, encourages greater utilisation of these services—a factor that often deters those in low-income groups from using formal financial services.

The user information captured in the process also helps to tackle information asymmetries in the market. "We expect to get better information on their spending habits and thus expect to be able to provide better credit based on that information," explains Mr Velez. Information is collected with

the consent of the customer, and increasingly more of them—especially younger generations—are realising the value in doing so. "A lot of customers are comfortable trading off data knowing that they will finally get access to good financial products and lower rates. Our customer base is mainly people who are between the ages of 18 and 40, and they are more comfortable providing their data."

In this way, fintech firms are addressing the most fundamental challenges in the formal banking sector, and as long as those challenges persist, fintech firms will continue to seize market share.

This does not, however, pit David against Goliath. There are opportunities for collaboration between fledgling fintech firms and established financial institutions. In a global survey conducted by The Economist Intelligence Unit, close to half of the banks and a little over half of the fintech firms surveyed were open to "fintegration", that is bank-fintech partnerships or acquisition by a bank.<sup>14</sup> Mr Shea explains: "Working together makes a lot of sense, as the cost of acquiring a new customer is much lower for us. The risk assessment for small businesses is very costly for a large institution." In addition, through fintegration, banks can adopt new technologies and fintech firms can achieve scale, meet regulatory standards and build their brands.

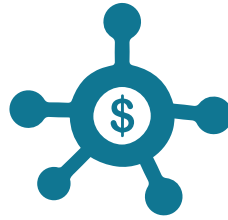
### **Key impediments**

There are factors constraining the growth of the fintech sector in LAC. Regulation is often at the top of the list, with many national frameworks lacking specific regulation for fintech firms. Mr Velez elaborates: "In Brazil, the financial services sector is highly regulated. It makes it extremely hard for start-ups to understand how to navigate around every single one of the obstacles, and be able to take a risk to actually launch and compete with the big banks."

Regulation needs to be amended to promote fintech firms and safeguard customers. This has been the goal of a new fintech law in Mexico (Law to Regulate Financial Technology), which, at the time of writing (January 2018), has been approved by the Senate (the upper house) and is under consideration by the Chamber of Deputies (the lower



house). The law, lauded by some, was characterised as “more of a catch up” by Mr Ardila of Hawksbill Group. It provides flexibility and incentives for banks to introduce new tech-based solutions. Importantly, it introduces key concepts to the regulatory framework, including crowdfunding, cryptocurrency, regulatory sandboxes, robo-advisors and application programming interface.<sup>15</sup>



Governments around the world are setting up “sandboxes”, a more relaxed regulatory environment in which a handful of fintech firms can operate under close supervision of the regulator. There are reports that this is being considered in Brazil. Other market players suggest a “proportional” regulatory system, where smaller players have to comply with fewer rules. Securing licences is also slow and bureaucratic; accelerating this process will go a long way. The Central Bank of Brazil is currently working on regulation that will facilitate licensing procedures.

Securing finance in fintech has not been easy, and fintech firms in LAC have, for the large part, been financed by local entrepreneurs and investors, experts say. Legislation generally permits foreign investment in banking services, but registration requirements in some countries may make

the process cumbersome and somewhat deterring. In Brazil, FDI in banking requires special presidential permits, and the process in general is slow. “If governments are able to open up a little bit and welcome foreign investment, that would help start-ups and help to [foster] competition,” believes Mr Velez.

In addition to these, financial literacy is weak. “Financial services are complex, they have fees, they have interest rates. It’s harder to get a loan than to have a Facebook account,” explains Mr Velez. “A lot of these people have cash under their mattresses.” But this is changing, says Mr Ardila. “The consumer is becoming more and more sophisticated.”

### **Outlook**

In general, experts are most optimistic about the Brazilian and Mexican fintech markets. Cumplo is on track to expand into Mexico by March 2018 and Mr Shea says that the market will be their focus for the next year or two. Mr Ardila also believes that Colombia, Chile and Peru have good prospects too, as they have better regulation. “They are attracting good capital and have good technology platforms,” he says. Although Chile has investor-friendly policies, experts cite the small size of its market as a limitation to growth.

# Chapter 3: Renewable energy

To boost economic growth, there is a strong consensus among market players and experts that power infrastructure needs to be strengthened. Roughly 5% of LAC's population lacks electricity. "There's also a view that the demand for electricity is going to increase because transport, cooking, heat, air conditioning will be driven by electricity and not by gas and coal," says Bart Doyle, general manager of Mainstream Renewable Power, an independent large-scale developer of wind and solar power projects. The electrification of transport, primarily electric cars and buses, will significantly increase electricity consumption going forward.

The Inter-American Development Bank estimates that LAC will need to install an additional 600 GW by 2030, which will require investments amounting to US\$430bn.<sup>16</sup> Where will this energy come from?

## LAC's power landscape

The bulk of energy generation in LAC relies on fossil fuels and large hydro projects; renewable energy sources account for less than 20%. Wind power generation has grown exponentially in LAC, as in the rest of the world, in recent years. Capacity in the region rose from less than 1,000 MW installed in 2010 to more than 8,000 MW at present.<sup>17</sup> Wind energy in Uruguay accounts for over 40% of total installed capacity, the largest in LAC. In Brazil and Chile, the contribution is roughly 6.3% and 4.1%, respectively. Solar energy generation has grown in LAC, but remains marginal. Existing photovoltaic installations (the most common type) generated 625 MW in 2014 compared with 133 MW the previous year. Chile is the leader in the field, followed by Mexico and Brazil.

There is a strong case to be made that the growing demand for electricity will be met with new renewable energy projects (such as wind and solar) rather than conventional energy sources (such as coal, oil and gas). Here, we explore the primary arguments for this.

## The case for renewable energy in LAC

Governments across LAC have set ambitious targets to reduce carbon emissions as part of global efforts to combat climate change. Part of these efforts include targets for electricity generation from renewable sources of energy. For instance, Mexico aims to reduce the use of fossil fuels to 65% of the energy mix by 2024, 60% by 2035 and 50% by 2050, from over 80% at present.<sup>18</sup> In Chile, since 2010 power companies have been bound by law to generate at least 10% of their total production with non-conventional renewable energies by 2024.<sup>19</sup> Chile plans to take the share of renewables from 15% of the total at present to 25-30% by 2021, says Mr Doyle. Moreover, in Chile, high levels of pollution mean that the government is encouraging users to replace woodstoves with solar alternatives.

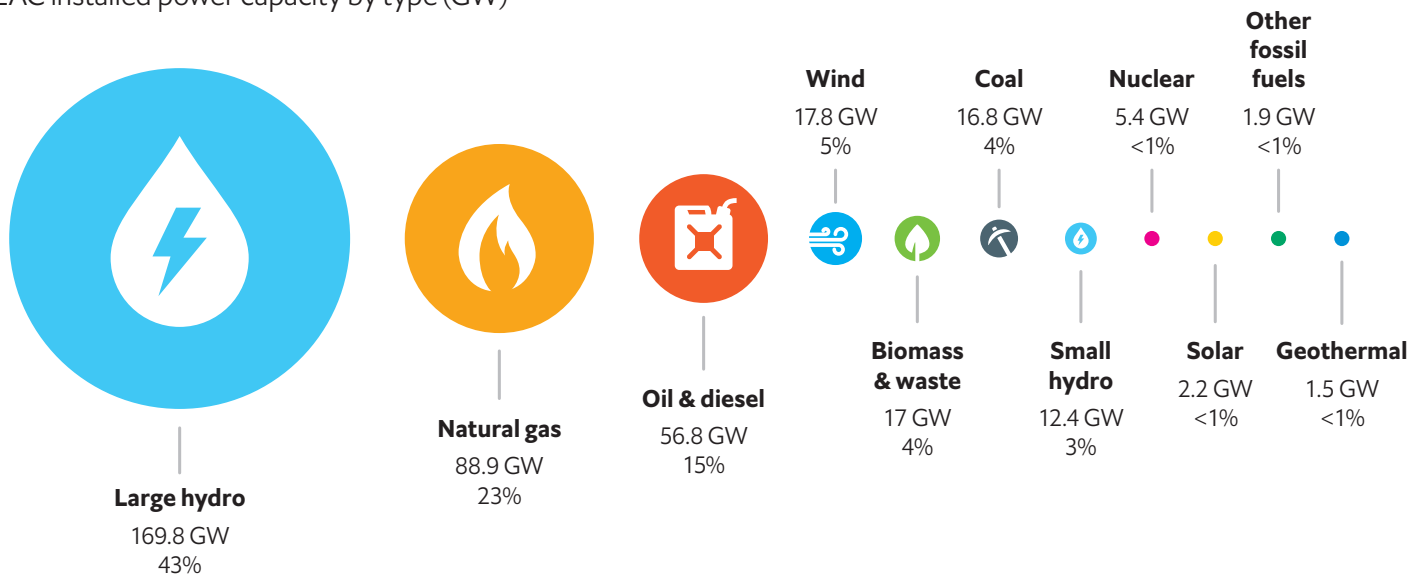
More compelling, however, is the steady decline in the cost of generating electricity from renewables in recent years. "Falling costs are attracting investments, particularly in wind this year and solar last year and the year before, to the point where it is very hard to argue that conventional energy stands a chance against wind or solar in countries like Chile, for instance," Mr Doyle affirmed. "If wind and solar are cheaper, then it's more likely that the electricity gap will be filled by new wind and solar projects, not by new conventional energy projects."

Improvements in wind and solar technologies are also making them more competitive. Operational wind turbines and solar panels are sending data to manufacturers to facilitate these improvements. "When I started in the industry, the lifetime of the wind turbines was 15 years. Now, the minimum is 20 years and some of them are offering 30-year packages now for the turbines," says Mr Doyle.

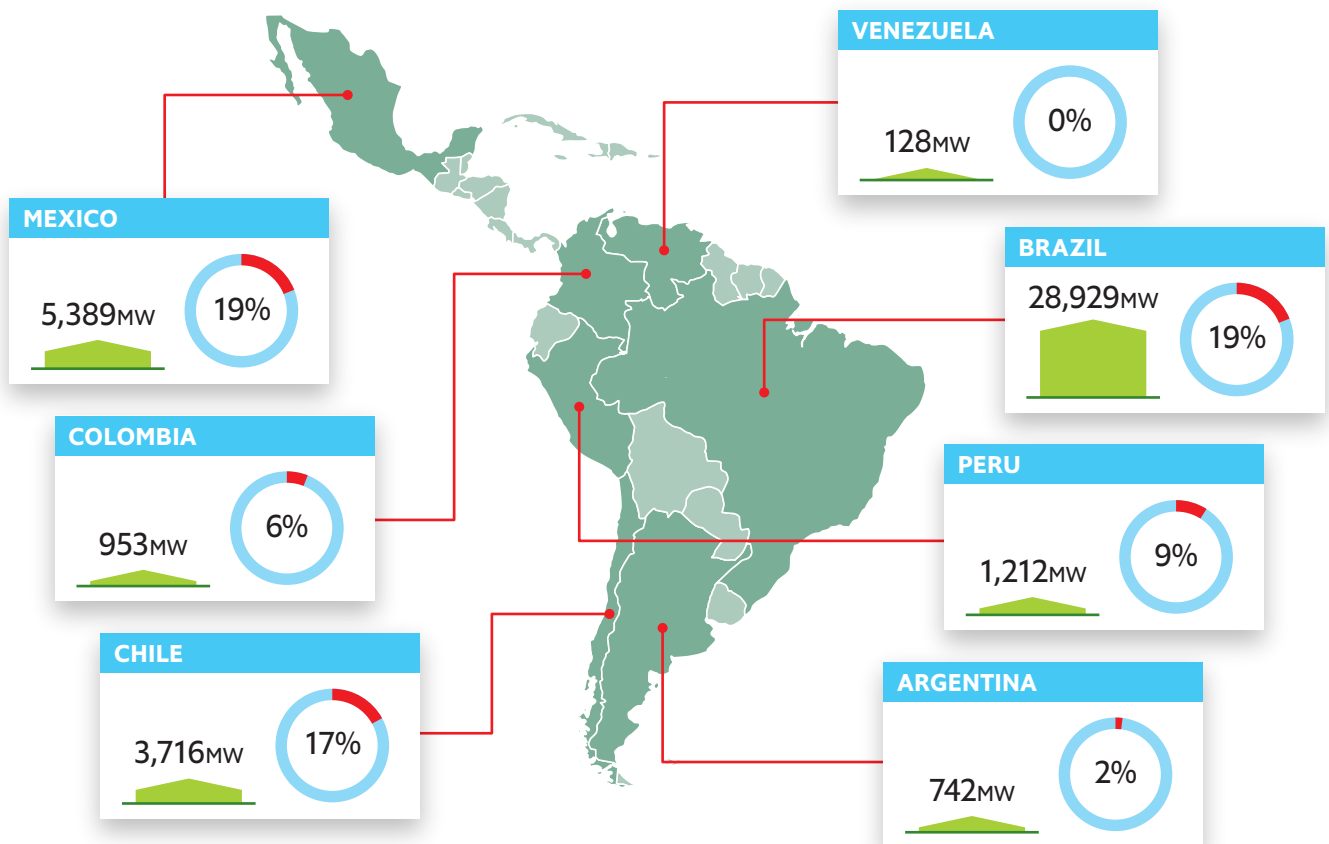


**Figure 3: LAC energy landscape**

LAC installed power capacity by type (GW)



Installed renewable energy capacity (MW)  
& share of total installed power capacity by country



Source: Climatescope 2017

Many of the larger LAC markets have regional conditions that are conducive to renewable energy generation. Mexico's daily average irradiation<sup>20</sup> is 5.5 kWh/m<sup>2</sup>, among the highest in the world.<sup>21</sup> Brazil's tropical location ensures strong irradiation levels all year round, including winter. Its north-east region in particular is classified as having the highest level of solar irradiation in the world.<sup>22</sup> "Chile too has one of the best solar exposures, certainly in Latin America," claims Mr Doyle. He further explained that capacity for solar projects in Chile's Atacama region is comparable to that of Middle Eastern countries.<sup>23</sup>

"Argentina has some of the best wind resources in the world," Mr Doyle added. He estimates that capacity factors for wind projects can reach 55% in Argentina, particularly in the Patagonia area, compared with averages of 35-40% in the US mid-west. "They also have a very good grid network and have a high capacity, high voltage line throughout the country." Despite this, the country<sup>24</sup> is quite focused on big solar projects (of 80-100 MW).

Brazil receives twice the world's wind average, with a volatility of only 5%, thus allowing more predictability.<sup>25</sup> In Brazil, explained Mr Ardila, the government plans to increase wind capacity from 9 GW at present to 20 GW by 2025.

Wind power is gradually becoming an ideal complement to hydro power, which dominates the LAC energy mix and, in recent years, has suffered as a result of drought conditions in the region. The construction of new hydro plants also faces severe obstacles, including opposition from local communities that may be displaced and those concerned with the adverse impact on the environment. One example is the Alto Maipo project in Chile, which is facing significant delays, says Mr Doyle. "That project is about 50% complete and it's in trouble. It's about 20% over budget, it's a number of months late, and the banks and the shareholders are arguing over how to complete and finish that project." In addition to this, Mr Doyle feels that hydro projects are uncompetitive on the pricing front: "In Chile, the price forecasts for SPOT (merchant power market) prices for the next 20 to 30 years are running between \$40 and US\$60 per MW. It will be very difficult to finance new hydro projects at these levels."



## Financing renewable energy in LAC

Although regional conditions are conducive to renewable energy generation in LAC, often projects fail to move ahead as a result of challenges with financing. But the larger LAC markets have adopted reforms in order to attract private investments to renewable energy. "Reforms are proving very attractive for investors," said Mr Ardila of Hawksbill Group. He explained that recent reforms in Brazil have facilitated the sale and purchase of solar power generation, which is likely to boost this type of project. Mexico has adopted the most visible reforms in the recent past—a series of laws in 2013 and 2014 ended the 75-year-old state monopoly in the energy sector. State-owned Pemex (which controlled the oil industry) and CFE (responsible for electricity generation and distribution) were experiencing declining productivity and increasing debts.<sup>26</sup> The reforms were aimed at attracting private investment and improving productivity growth in the sector. Many countries now offer subsidies, fiscal incentives, and tenders to buy renewable energy through long-term contracts of up to 25 years. Initiatives such as RenovAr, a government-led programme to launch more renewable energy projects in Argentina, are also spurring investment in the sector.

Investors have become more sophisticated too and now include pension and insurance funds. "It used to be a separate asset class, now it's in the same asset class as infrastructure," explains Mr Ardila. Renewable energy investments also rank high within the growing field of impact investing—which aims both to generate profits and to achieve good social outcomes.

There are experts who have expressed concerns over the way auctions for renewable energy projects in LAC are structured. They believe auctions focus almost entirely on securing the lowest bid. The lower cash flows as a result make it less attractive for local banks to finance projects. An emphasis on developing sustainable and "bankable" projects, by validating proposed financial plans and introducing flexibility in pricing structures for instance, may attract more project finance.<sup>27</sup>

## **Outlook**

Regulation will play a vital role in shaping the future of renewables in LAC. For solar energy, some countries have expanded their metering programme, which allows generators to offset their electricity costs with credits from

the energy they supply to the grid. There are similar schemes for communities to share credits and costs. Evolving rules on caps on the carbon tax will also factor into investment decisions in the sector.

# Addendum: A role for GCC investors?

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There are strong fundamentals supporting growth in the two sectors explored in this paper—fintech and renewable energy. Financial services are expected to continue to grow at healthy rates in LAC on the back of technological advances, higher personal incomes, the integration of services, favourable legislation and room for growth (given low banking penetration currently), among others. Rapid growth in electricity demand in LAC is expected to be met with new renewable energy capacity—the key arguments for this are its declining costs and crucial role in helping governments to achieve their targets to reduce carbon emissions.

These sectors are hungry for finance, and FDI will play an important role in supporting them. FDI in services to the region is growing and accounted for 47% of the total in 2016.<sup>27</sup> Investments in new areas like renewable energy, telecoms and automotive experienced robust growth in 2016, increasing their share in the total to 17%, 21% and 20%, respectively. Chile and Mexico are the largest recipients of FDI in renewables. Although overall FDI in LAC fell by 5% in 2017, according to The UN's Economic Commission for Latin America and the Caribbean (ECLAC<sup>28</sup>), it is forecast to increase in 2018, driven by sectors such as renewable energy, mining, tourism and manufacturing.

Currently, the vast majority of FDI into LAC is from Europe and North America, accounting for 73% of the total in 2016. Investments from the Gulf Co-operation Council (GCC) countries<sup>29</sup> have been few in number and traditionally

directed at the construction and oil and gas sectors from investors such as Mubadala Investment Company and DP World, a logistics firm.

However, this points to an opportunity for GCC businesses to further expand their presence in the region, using their know-how in fintech and renewable energy and helping to address one of the main bottlenecks to a more rapid expansion of these sectors in Latin America: insufficient financing for start-ups and renewable energy projects.

In order to attract more FDI from GCC countries and the world in general, governments in Latin America will need to reinforce their business environment and provide more stability in their political and policy framework. Experts interviewed for this research cite Chile as an example of a country providing best practice in LAC. "It's had a very stable political system for the last 20 years. Even when they swing from right to left, you don't see a huge swing in policies. They don't undo the work of the last government," says Mr Doyle of Mainstream Renewables.

For renewable energy and fintech, Mr Ardila advises foreign investors to understand that "LAC is not a homogenous region". He believes Brazil and Mexico offer the best opportunities because of their size, while Argentina, Chile, Colombia and Peru are smaller, but offer relative stability. "You also have to know how to manage volatility if you want to do well in this part of the world, and the best thing for this is to invest for the long term," he said.



The progress the GCC countries have made on fintech and renewable energy also present lessons for LAC. In fintech, Bahrain, Qatar and the UAE have announced or launched sandboxes. Learnings from these programmes will be vital for developing a regulatory framework for fintech companies. As Brazil and other countries in the region look to set up sandboxes and develop fintech-specific regulation, they can learn from the GCC experience. In renewable energy, solar

projects in the UAE, developed as public-private partnerships (PPPs), have recorded among the lowest rates in the world for the cost of electricity per kilowatt. Lessons from successful PPP models for renewable energy in the region may be valuable to businesses and governments in LAC as they look to drive private investment in the sector, including foreign investment from the GCC.

**Notes**

- <sup>1</sup> The Economist Intelligence Unit, Latin America: Regional overview, January 2018
- <sup>2</sup> Leonardo Nemer Caldeira Briant. Organiser. "Sustainable Development and Energy Matrix in Latin America. The Universal Clean Energy Accessibility". Edited by Konrad Adenauer Stiftung, EKLA—Regional Program Energy Security and Climate Change in Latin America, and Centro de Direito Internacional (CEDIN). 2017.
- <sup>3</sup> World Bank Databank.
- <sup>4</sup> Productivity is defined as output per worker
- <sup>5</sup> McKinsey Global Institute. "Where will Latin America's Growth Come From". Discussion Paper. April 2017.
- <sup>6</sup> World Bank Group. "The Global Findex Database 2014. Measuring Financial Inclusion Around the World". April 2015.
- <sup>7</sup> Comision Economica para America Latina y el Caribe (CEPAL).
- <sup>8</sup> Financial spread is defined as the difference between interest rates charged to borrowers and those offered to savers
- <sup>9</sup> CEPAL. "Estudio Economico de America Latina y el Caribe. Desafios para impulsar el ciclo de inversión con miras a reactivar el crecimiento". 2015.
- <sup>10</sup> <http://www.pewglobal.org/2016/02/22/smartphone-ownership-and-internet-usage-continues-to-climb-in-emerging-economies/>
- <sup>11</sup> World Bank TC36odata
- <sup>12</sup> <https://www.finnovista.com/fintech-radar-spain/?lang=en>
- <sup>13</sup> El Economista. "8 datos sobre las fintech y su regulación en Mexico". May 2017. Accessed at: <https://www.eleconomista.com.mx/sectorfinanciero/8-datos-sobre-las-fintech-y-su-regulacion-en-Mexico-20170507-0093.html>
- <sup>14</sup> <https://www.eiuperspectives.economist.com/technology-innovation/disruption-banking/infographic/disruption-banking-industry-banks>
- <sup>15</sup> Hogan Lovells, Mexico's Fintech Law initiative: What you need to know.
- <sup>16</sup> Inter-American Development Bank (IDB). Lenin Balza, Ramon Espinasa, Tomas Serebrisky. "Lights On. Energy Needs in Latin America and the Caribbean to 2040". 2016.
- <sup>17</sup> CAF. "Energía: Una Vision Sobre los Retos y Oportunidades en America Latina y el Caribe". March 2013.
- <sup>18</sup> International Energy Agency. <https://www.iea.org/policiesandmeasures/pams/mexico/name-24706-en.php>
- <sup>19</sup> IDB, Lights on
- <sup>20</sup> Irradiation is defined as the power per unit area received from the sun.
- <sup>21</sup> IDB, Lights on
- <sup>22</sup> IDB, Lights on
- <sup>23</sup> Leonardo Nemer Caldeira Briant. Organiser. "Sustainable Development and Energy Matrix in Latin America. The Universal Clean Energy Accessibility". Edited by Konrad Adenauer Stiftung, EKLA—Regional Program Energy Security and Climate Change in Latin America, and CEDIN. 2017.
- <sup>24</sup> Capacity factor is defined as the ratio of the actual energy produced by a turbine in a period of time to the nameplate capacity of the turbine
- <sup>25</sup> IDB, Lights on
- <sup>26</sup> <https://sites.hks.harvard.edu/hepg/Papers/2017/Mexican%20Energy%20Reform%20Draft%201.23.pdf>
- <sup>27</sup> <http://carlosstjames.com/renewable-energy/the-troubling-trend-towards-increased-speculation-in-the-latin-american-renewable-energy-sector/>
- <sup>28</sup> ECLAC. "Foreign Investment in Latin America and the Caribbean". 2017.
- <sup>29</sup> The GCC includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE



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## LONDON

20 Cabot Square  
London  
E14 4QW  
United Kingdom  
Tel: (44.20) 7576 8000  
Fax: (44.20) 7576 8500  
Email: london@eiu.com

## NEW YORK

750 Third Avenue  
5th Floor  
New York, NY 10017  
United States  
Tel: (1.212) 554 0600  
Fax: (1.212) 586 1181/2  
Email: americas@eiu.com

## HONG KONG

1301 Cityplaza Four  
12 Taikoo Wan Road  
Taikoo Shing  
Hong Kong  
Tel: (852) 2585 3888  
Fax: (852) 2802 7638  
Email: asia@eiu.com

## GENEVA

Rue de l'Athénée 32  
1206 Geneva  
Switzerland  
Tel: (41) 22 566 2470  
Fax: (41) 22 346 93 47  
Email: geneva@eiu.com

## DUBAI

Office 1301a  
Aurora Tower  
Dubai Media City  
Dubai  
Tel: (971) 4 433 4202  
Fax: (971) 4 438 0224  
Email: dubai@eiu.com

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