A green recovery for Latin America:

Transforming the energy sector after COVID-19

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Introduction

One of the main areas of geographical focus for the Enel Foundation is Latin America. With reference to the region, we have recently produced a series of studies on how to integrate at best the development of power generation capacity from variable renewables and grid interconnections. We have shown that by optimizing the two investment areas, renewables can indeed play a fundamental role to improve the affordability of energy supply, while offering environmental benefits. With the outburst of the Coronavirus emergency, we have asked ourselves if these results are still valid. The answer was yes and this paper explains why policies like the ones implicitly behind the scenarios of our studies should in fact be a sensible response to recover from the crisis originated by the pandemic.

COVID-19 represents for the global economy and society a shock whose intensity and long-term consequences are yet to be fully understood. Latin America is no exception, posing a number of questions to the overall future of the continent. Needless to say, the humanitarian, social and economic disruptions generated by the pandemic are expected to influence Latin America pathways towards development, included its effort to move towards a more sustainable, reliable and affordable energy sector. Against this backdrop, the effects of COVID-19 on decarbonization process at the continental level ultimately depend on our ability to device solutions capable of addressing at the same time both the pressing short-term health, economic and social issues that COVID 19 presents and long-term sustainability targets.

Although during major crises conservative approaches might appear as the most suitable option to cope with short-term difficulties, launching recovery initiatives that emphasize decarbonization and the fight against climate change becomes fundamental to avoid that short-term emergency-driven responses turn into gloomy mid-to-long term effects. Despite a number of similarities[1], at a first glance COVID-19 and climate change emergencies may appear very different, and indeed they are on the side of timing. The former shattered our life on a one-day timescale. The second often looks dormant in the short-term, yet it has the potential to be immensely more disastrous in a not much longer perspective. For this reason, the responses that governments, international organizations, investment institutions and private sector are expected to put in place to address COVID-19 should necessarily take into account – or, rather, be used as a further stimulus to promote – decarbonization objectives, the fight against climate change and access to better energy services for all.

This is certainly the case of Latin America, which has benefitted from the global support for action on climate change, as demonstrated by the policies adopted, the investments flow sustained by foreign entities and backed by multilateral development banks (MDBs), and the projects launched across the continent. According to IRENA, Latin America has seen significant investment in renewable energy in

1 COVID-19 and climate change have a number of common features: 1) Magnitude, with strong impact on health of million people, 2) Inequality, with stronger impact on poor/weakest that are more exposed and in most of the countries cannot be healed, 3) Global reach, as it is a global phenomenon, with no borders, and needs cooperative responses (e.g. policy choices of USA/China can have a strong effect on a remote island in the Indian Ocean), 4) Uncertainty, despite forecasts and planning, their effects are still highly unpredictable (most likely towards negative outcomes), 5) complexity, as both phenomena – and above all their effects - depend on myriad of factors often intertwined in (still) unknown ways.

recent years, exceeding US$ 80 billion in the period 2010-2015,[2] while in 2018 it was the second region of the world[3] in terms of climate finance committed by MDBs with US$ 8.77 billion, equals to 20% of total committed by these banks at the global level.[4] These efforts, and the results already achieved, should not be squandered by adopting conservative short-termed policies that jeopardize the capacity to face the key social, economic and political challenge for the future of the continent: the effects of global warming.

With all this in mind, and moving from what has already been built-up at the continental level, this paper aims at:

- identifying the most prominent challenges to the decarbonization process in Latin America as emerged from the COVID-19 outbreak, and the economic, social and political risk associated with backwards policies in this domain;
- evaluating the opportunities and the benefits associated with the adoption of a more ambitious sustainability/decarbonization path at the continental level.

Based on this analysis, a number of policy recommendations are proposed to minimize the risks of a green slow-down associated with the post-COVID scenario, while maximizing the impact and the benefits of a continental recovery based on the pillars of decarbonization and sustainability.

COVID-19 in Latin America: public health, social and economic effects

The COVID-19 pandemic has hit the Latin American continent with a certain delay compared to other regions of the world, namely Asia – where the virus was initially identified in the Chinese city of Wuhan at the end of 2019 – and Europe, with Italy being the first country hit by the disease within the continent.[5] According to the Pan American Health Organization (PAHO), in mid-May the spread of the pandemic across Latin America had not reached the peak and the full effects of the crisis had yet to be experienced.[6]

Brazil was the first country in the region to report the disease on 25 February 2020, with the first recorded death due to the virus on 16 March. Since then, all the countries decided to progressively enforce lockdowns domestically and close their borders externally. Although regional public health data are fragmented and continuously under revision, the magnitude and the progression of the emergen-

2 IRENA, "Renewable Energy Market Analysis: Latin America". IRENA, Abu Dhabi, 2016. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2016/IRENA_Market_Analysis_Latin_America_2016.pdf

3 African Development Bank et al., "2018 Joint Report on Multilateral Development Banks Climate Finance", European Bank for Reconstruction and Development, London, June 2019. https://publications.iadb.org/publications/english/document/2018_Joint_Report_on_Multilateral_Development_Banks_Climate_Finance_en_en.pdf

4 Sub-Saharan Africa ranked first with US$ 8.9 million, accounting to 21% of global MDBs climate financing.

5 At the global level, most severely hit countries, in terms of reported cases, include the US, Russia, Brazil and the UK.

6 Anthony Boadle, "WHO says the Americas are new COVID-19 epicenter as deaths surge in Latin America", Reuters, 26 May 2020. https://www.reuters.com/article/us-health-coronavirus-latam/who-says-the-americas-are-new-covid-19-epicenter-as-deaths-surge-in-latin-america-idUSKBN2322G6

cy appears clear. As reported by PAHO, it took the region[7] three months to reach 1 million cases, while in the following three weeks infected people nearly doubled.[8] As of mid-June, almost 1.5 million cases of COVID-19 and around 70,000 deaths have been reported in Latin America[9], with the region passing Europe and the United States in terms of daily infections and becoming the pandemic's epicenter.[10]

While Brazil, being the most populous country of the continent, has registered most cases and deaths (923,000 and 45,000 people respectively) in absolute terms, the situation is particularly critical in Ecuador and Peru.[11] Ecuador has registered the highest fatality number per capita in the region - with around 23 per 100,000 inhabitants, while Peru is the 8th country in the in terms of reported cases in the world, with 237,000 infected people and more than 7,000 confirmed deaths.[12] In these conditions, considering the densely populated very poor areas across the continent, the limited or insufficient healthcare response capabilities, and the poor or non-existing testing procedures, flattening the disease curve will be an extraordinarily challenging effort.

The current public health and humanitarian emergency adds to a broader and even more complex regional social and economic scenario, characterized by recession and external debt; informality, poverty and big inequalities.[13]

Macroeconomic conditions

Prior to the COVID-19 emergency, the economies of Latin America where affected by a number of negative economic conditions, such as large public debts, high current account imbalances and low growth. Given these conditions, many countries in the region have limited fiscal space and resources to address the public health emergency and the socio-economic crisis, with severe implications for the well-being of their citizens and in particular for the poorest parts of their societies. In addition to this, the crisis has generated massive capital outflows and a depreciation of currencies in many countries. In the first month after the outbreak of the COVID-19 virus alone, Brazil suffered capital outflows worth US$ 11 billion - equivalent to the GDP of a country like Nicaragua – and a 20% depreciation of the Real versus the dollar.[14]

7 Although including the entire American continent, data offer a significant snapshot of the acceleration of the COVID spread occurred in April 2020.

8 PAHO, "PAHO Director asks countries to address health, social and economic emergencies together, as COVID-19 expands in the Americas", 12 May 2020. https://www.paho.org/en/news/12-5-2020-paho-director-asks-countries-address-health-social-and-economic-emergencies-together

9 Luisa Horwitz, Paola Nagovitch, Holly K. Sonneland, and Carin Zissis, "The Coronavirus in Latin America", Americas Society – Council of the Americas, 2020. https://ais.paho.org/phip/viz/COVID19Table.asp

10 Interview to Marcos Espinal, Director of PAHO's Department of Communicable Diseases and Health Analysis, by Debbie Ponchner, *Latin America Faces a Critical Moment in the Battle against COVID-19*, Scientific America, 17 June 2020. https://www.scientificamerican.com/article/latin-america-faces-a-critical-moment-in-the-battle-against-covid-19/

11 Luisa Horwitz, Paola Nagovitch, Holly K. Sonneland, and Carin Zissis, "The Coronavirus in Latin America", 2020.

12 GlobalData Healthcare, "Strict lockdown policies in Peru have done little to curb the spread of Covid-19", Pharmaceutical Technology, 19 June 2020. https://www.pharmaceutical-technology.com/comment/covid-19-peru/

13 ECLAC, "COVID-19 Special Report: "Measuring the impact of COVID-19 with a view to reactivation"", 2020. https://repositorio.cepal.org/bitstream/handle/11362/45477/4/S2000285_en.pdf

14 Jonathan Wheatley and Andres Schipani, "Bolsonaro, Brazil and the coronavirus crisis in emerging markets", Financial Times, 17 April 2020. https://www.ft.com/content/3d113fba-8096-11ea-82f6-150830b3b99a

A number of resources-rich country are significantly impacted by the slump in the demand and prices of commodities, including oil, copper and minerals, as well as by the effects of the crisis on currencies. Due to the economic slowdown in the industrialised countries of Europe, Asia and North America, financial inflows will remain critically low for oil exporting states such as Venezuela, Colombia, Ecuador and Mexico, exporters of minerals such as Chile, Peru and Bolivia or of agricultural goods (i.e. Brazil).

Impact of COVID-19 on regional exports.

Region / Subregion / Country	First COVID-19 Special Report[a]			Updated projections[b]		
	Volume	Price	Value	Volume	Price	Value
Latin America and the Caribbean	-2.4	-8.2	-10.7	-6.0	-8.8	-14.8
Oil exporters	-1.8	-14.1	-15.9	-4.7	-14.6	-19.2
Mineral exporters	-3.0	-8.9	-12.0	-7.4	-9.3	-16.7
Exporters of agro-industry products	-2.4	-2.4	-5.0	-6.2	-4.0	-10.2
South America	-2.8	-11.0	-13.8	-6.0	-11.6	-17.6
Brazil	-3.7	-7.5	-11.2	-7.0	-8.1	-15.1
Mexico	-2.2	-5.2	-7.4	-6.0	-5.7	-11.6
Central America	-1.3	-2.7	-4.0	-4.9	-5.3	-10.3
Caribbean countries	-2.0	-7.2	-9.3	-6.2	-7.7	-13.9

Source: ECLAC, 2020.

a The follow growth rates ar assumed for 2020: 1.0% (World), 1.0% (United States), 0.3% (Japan), 0.5% (EU-27), 3.0% (China), 1.8% (Latin America and the Caribbean), plus an average reduction of 16% in the region's commodity export basket.

b The follow growth rates ar assumed for 2020: -2.0% (World), -3.8% (United States), -4.2% (Japan), -5.7% (EU-27), 1.8% (China), -5.3% (Latin America and the Caribbean), plus an average reduction of 18% in the region's commodity export basket.

Trade with China, which imports large amounts of iron ore, copper ore, zinc, aluminum, soybeans, soybean oil is expected to decline by almost 25% in 2020, hitting in particular the economies of Argentina, Brazil, Chile and Peru, the region's largest exporters of those goods to the Chinese market. Negative outlooks are projected also for the trade with the US and the EU. In the case of the US, exports contractions are estimated between 7-11 % (affecting in particular manufactures in Mexico and Costa Rica); exports reduction towards the EU could range between 9-16%, with significant impact on the mining sector (affecting Chile, Colombia, Ecuador and Peru) and the agro-industry (hitting mainly Argentina, Brazil, Chile, and Peru). Another important aspect to be noted is the contraction of regional trade, which is expected to fall between 11-14.5%, affecting in particular the labor-intensive, low-tech manufacturing sector.[15]

These trends are closely interconnected with the breakage in the supply chains - from the largest to the smallest - determined by the regional responses to the emergency. Disruptions on supply chains concern both local production and imports, including finished goods, raw materials for the local industry and food for the population. Latin America's small and medium-size business sector will likewise be greatly affected by this situation, with possible long-term consequences as these businesses struggle to access to liquidity and remain solvent.[16] Broken credit, damaged supplier relationships, and lost customers will make it challenging to

15 ECLAC, COVID-19 Special Report: "Measuring the impact of COVID-19 with a view to reactivation", 2020.

16 To respond to this situation, in various countries of Latin America governments have implemented new bankruptcy/insolvency procedures to address the difficulties affecting the payment chain. These procedures implemented in countries like Colombia and Peru, look to ease agreements between the companies and it creditors for reschedule the payments.

bounce back once the economy recovers. The situation of Brazil, the continent's economic engine is a case in point. The crisis has indeed already reached the Brazilian industry: 9 out of 10 companies are expected to be negatively affected by COVID19-induced effects. According to surveys, 80% of companies experienced a sharp drop in demand, 90% are struggling to obtain inputs or raw materials and 83% are facing difficulties in cross border logistics.[17] In the country, as across the entire continent, a sharp drop in demand for industrial products occurred, with the exception of cleaning and personal care, pharmaceuticals and food, because the sale of these essential products did not stop during lockdown and quarantine.

The current global pandemic affects also another vital source of liquidity for Latin American economies: migrant remittances, which are expected to decline sharply as the economic crisis hits sending countries (i.e. the US). While the value of remittances is particularly high in the small economies of Central America,[18] these flows make a very significant contribution to economic activity also in countries such as Bolivia, Ecuador, Mexico, Peru and Colombia. According to ECLAC estimates, remittance flows to Latin America and the Caribbean could contract by 10%–15% in 2020 and could take 4 to 8 years to return to the levels seen in 2019.[19] Considering that between 80% and 90% of remittances are key to sustain basic needs - food, health and housing - of local recipients, the social implications of financial flows reduction will have a major impact on the poorest and weakest levels of the society.

Finally, the tourism sector - a central pillar of many Latin American economies - will be greatly affected by COVID-related restrictions adopted at the national, regional and global level.[20] With just a 30% drop in direct tourism revenues for 2020, the Caribbean, Mexico and Central America, and South America, will experience a GDP contraction of 2.5%, 0.8% and 0.3% respectively.

Inequalities

There are many types of inequalities such as in income, wealth, health or education that threaten society: the increasing gap between rich and poor is undermining social cohesion and in Latin America has historically represented a huge political issue. While in many advanced economies, the Gini Index that measures income inequality has slightly increased over the last decade and particularly after the 2008 financial and economic crisis, Latin America was characterized by a steady declining trend in the first fifteen years of the new century.[21] Later on, it stabilized or even started to increase again as in the case of Brazil.

Contrarily to what happened after the 2008 crisis which originated in the financial sector, the current health crisis caused by COVID-19 and the economic projections previously illustrated are expected to hit the weakest parts of the population in

17 Carlos Abijaodi, "Americas Business Dialogue - Response to COVID-19, Virtual Meeting", March 31, 2020.
18 According to the Inter-American Development Bank – IADB, 35% of the GDP of Haiti, 20% of GDP of El Salvador and Honduras, and 14% of the GDP of Guatemala originate in remittances.
19 ECLAC, COVID-19 Special Report: "Measuring the impact of COVID-19 with a view to reactivation", 2020.
20 As a result, two of the main airlines companies in the region - LATAM and Avianca - in May 2020 have filed for the Chapter Eleven of the Bankruptcy Act.
21 World Bank, "Gini Index Database", 2020. https://data.worldbank.org/indicator/SI.POV.GINI?end=2018&locations=BR-AR-CO-CL-PE&name_desc=false&start=1967&view=chart&year=2018

an unprecedented way. In this regard, there is little doubt regarding the fact that all types of inequalities will increase in the next future in one of the world's most unequal region.[22] As a matter of fact, most of Latin American people depend on unstable or informal labor activities[23] for their daily livelihood, which are the most directly impacted by the social-distancing measures adopted by governments to tackle the pandemic and are by definition excluded by any forms of public support: these include wholesale and retail, repair of goods, hotels and restaurants, transport, storage and communications, services in general.[24] These vulnerable categories - almost half the region's population - do not have assets or savings to carry through the crisis, and their livelihood basically depends on whether the government decides to ensure basic subsistence measures such as a universal basic income.

In addition to this, the poorest sections of the Latin American society, are the most vulnerable to the issue of the energy poverty and lack of access to modern electricity services.[25] This still unsolved situation has a negative impact on a wide range of development outcomes, including education, income, health, and gender equality, among many others, and it risks to be further amplified by the effects of COVID-19 on the regional energy sector.

COVID19 effects on the energy sector

The current socio-economic effects of the pandemic and the outlook for the future have - and are expected to have - huge implications for the energy sector. With most offices closed and people working from home, public transportation services broadly reduced and large industries activities interrupted due to fear of contamination between workers or as a response to market tightness, the energy sector is necessarily witnessing unprecedented challenges to its business. Significant drop in demand and fall of wholesale prices, consumers' reduced ability to pay, and possible companies' cash-flow and liquidity concerns are among the most critical effects of the crisis on the region's energy system, especially if recovery will be slow.

As the implications for Latin America oil exporting countries - hit by the combination of declining demand and collapsing prices - have already been discussed above, it is now important to pay attention to the main dynamics in place in the electricity sector. In the short-term the business continuity of the electricity sector is indeed key to the success of the battle against the pandemic, both in ensu-

22 Nora Lustig, "Most Unequal on Earth", Finance & Development, September 2015, Vol. 52, No. 3

23 For instance, in Peru, almost 70% of the economically active population depends on informal labor.

24 Severe impacts on people's working conditions and on employment or income are leading in turn to declines in countries' aggregate demand and increases in poverty. Categorization of three different levels: 1) the least affected: agriculture, livestock, hunting, forestry and fishing. 2) the moderately affected: mining and quarrying, manufacturing industries, electricity, gas and water supply, construction, financial intermediation, real estate, business and rental services, civil service, social and personal services. 3) the most affected: wholesale and retail, repair of goods, hotels and restaurants, transport, storage and communications, services in general.

25 Lenin H. Balza et al., "Energy Needs in Latin America and the Caribbean to 2040", IADB, 2016. https://publications.iadb.org/publications/english/document/Lights-On-Energy-Needs-in-Latin-America-and-the-Caribbean-to-2040.pdf

ring vital public health services to people affected by the disease and to ensure communication, education and other essential services (i.e. financial) during the lockdown.

Although regional data are not complete and fully exhaustive, the key trend since the beginning of the crisis appears clear: since late March, electricity demand has been progressively decreasing in all Latin American countries, with a contraction between 4% and 28% in the last week of the month compared to the same period of 2019.[26] However, in spite of common regional downward trends, there is considerable heterogeneity in terms of timing and quantities.

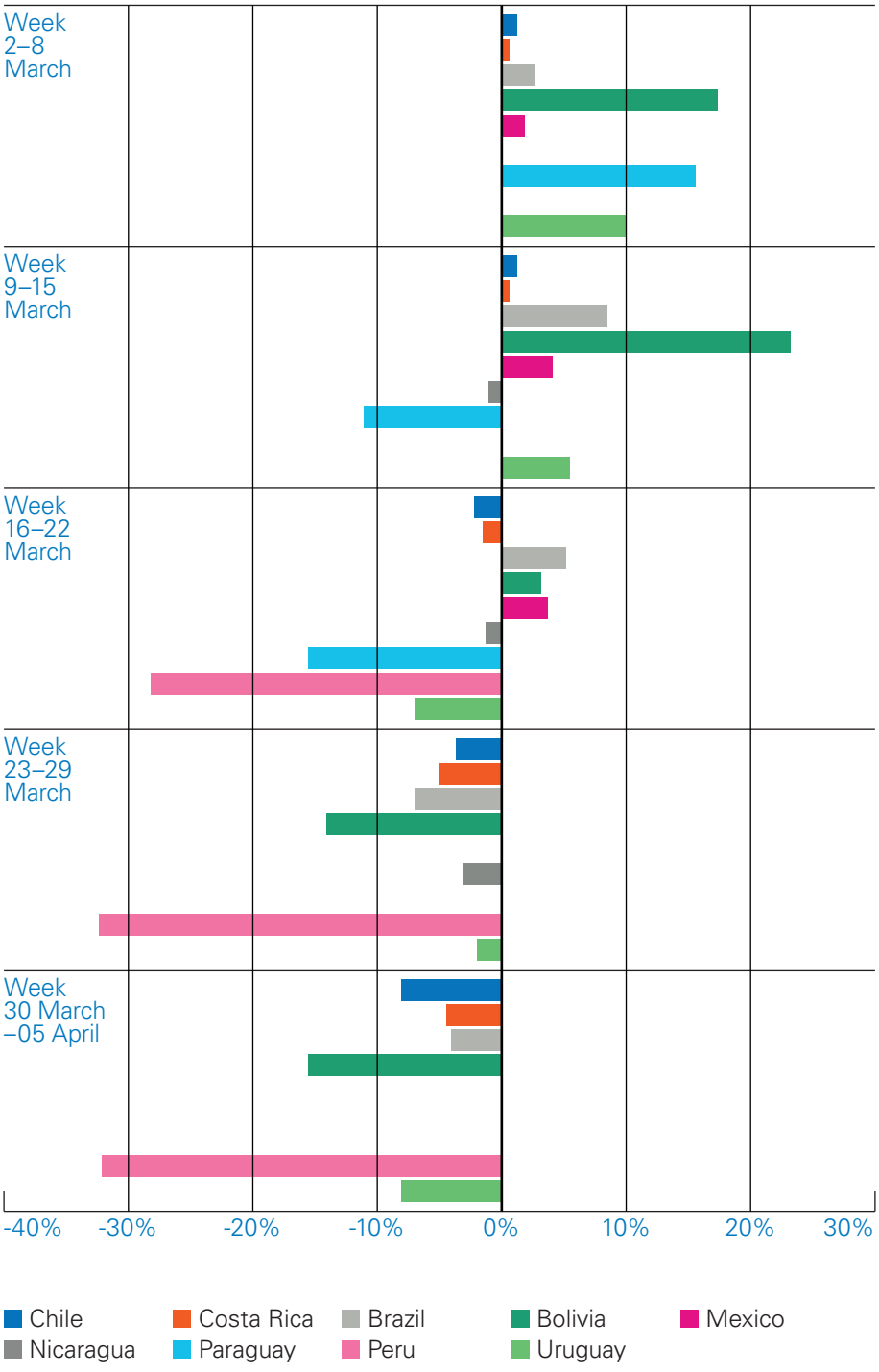
In Bolivia, one of the countries with the greatest slump in electricity demand along with Peru, the decline started by the third week of March, with an average reduction of 12% compared to the beginning of the month. During the fourth week of March and the in first of April the contraction deepened further, dropping respectively 27% and 28% over the same period. Similarly in Peru, the social-distancing and lockdown measures adopted by the government, determined a massive decline of electricity consumption. Electricity demand in the third and fourth weeks of March, and in the first one of April dropped respectively by 28%, 32% and 32% compared to the first week of March. Progression in demand decline characterized also the Chilean case, where in the third and fourth weeks of March and in the first week of April, electricity consumption dropped respectively by 3%, 5% and 9%, compared to the first week of March.[27]

Brazil, the largest economy and the most populous country of the region, experienced significant drop in electricity consumption, though more moderate compared to the cases of Bolivia and Peru. Decline in demand started one month after the first case of COVID-19 in the country, namely from the fourth week of March, when consumption dropped 10% compared to the first week of the month. Differently from other countries, demand (slightly) rebounded during the first week of April, although the decline compared to the first week of March remained considerably around 7%. Ups and downs in decline also in the case of Uruguay, where the lockdown measures have had huge impact on economic activities and electricity demand: consumption in the third and fourth weeks of March, and in the first week of April dropped respectively by 15%, 11% and 16% compared to the first week of March.[28]

Among those countries for which consolidated data are available, Mexico is the one where the measures of social-distancing – adopted with a certain degree of delay compared to regional peers – has less impact on electricity consumption. Demand indeed continued to increase throughout the month of March, while it registered a very small contraction (less than 1%) during the first week of April.[29]

26 Mauricio Tolmasquim at al., "Monitoring the impact of the COVID-19 crisis on electricity: lower demand with different profiles", IDB Blogs, April 28, 2020. https://blogs.iadb.org/energia/en/monitoring-the-impact-of-the-covid-19-crisis-on-electricity-lower-demand-with-different-profiles/
27 Ibidem.
28 Ibidem.
29 Ibidem.

Change in electricity demand, selected countries.



Source: IADB, 2020.

The differences described above not only depend on the different measures and timing adopted by local governments to contain the COVID-19 pandemic, but are also the result of the economic structure and the demand features of the countries. Being data on electricity demand aggregated at the national level, they fail to capture the different consumption patterns characterizing the various sectors and sub-sectors - residential, industrial, commercial and public health – of each country. For instance, the huge contraction in electricity demand experienced by Bolivia and Peru is probably explained by the suspension of their energy-intensive mining activities. But while national trends in electricity demand are certainly a valuable variable to assess the economic impact of the pandemic, it is important to highlight that the relation between electricity demand decline and economic slowdown is not necessarily a linear one. As a result, countries which experienced lower levels of consumption decline but which have less energy-intensive economies could still be heavily affected by the crisis.

Another important aspect to be highlighted is that the residential sector, despite large part of the population staying home due to lockdown and social-distancing measures, cannot offset the demand contraction generated by the economic halt, both in energy intensive economies and in those tertiary-oriented. The residential sector traditionally consumes less than the non-residential one (i.e. industries and businesses),[30] meaning that although more people are staying at home pushing domestic electricity consumption, the aggregate impact on electricity consumption during the crisis will be negative until economic activities recover.[31] This is particularly true in Latin America, where electrification of residential activities is low - in particular among the poorest levels of the society and in rural areas - and energy poverty among households is still very high.[32]

As a result, the electricity sector is facing liquidity concerns all across the continent, with countries that import fossil fuels from abroad to ensure generation capacity that – despite low prices – are more exposed financially by the demand crunch. Concerns about the liquidity of the sector are exacerbated by the fact that many governments (i.e. in Argentina, Paraguay and Peru) have decided to suspend/postpone the payment of electricity bills for up to three months for their citizens and businesses, negatively affecting the balances of utilities and distribution companies. In the short-term, distribution companies that are not receiving payment[33] will be running up accounts with their clients, expecting that credits will be rolled into future bills. While at present concerns about lack of immediate liquidity appear more urgent than those on customer solvency, the deepening and prolongation of the impact of the economic crisis on citizens and firms might contribute to change – worsening - this perspective. Uncertainty applies also to

30 Delia D'Agostino, Barbara Cuniberti and Paolo Bertoldi, "Energy consumption and efficiency technology measures in European non-residential buildings", Energy and Buildings, Volume 153, 15 October 2017, Pages 72-86.

31 Non-residential buildings are considered on average 40% more energy intensive than residential buildings. Non-residential buildings include wholesale & retail (28% of the total), offices (23%), educational (17%), hotels & restaurants (11%), hospitals (7%), sport facilities (4%), and other buildings (11%) such as warehousing, transportation and garage buildings, agricultural (farms, greenhouses) buildings, garden buildings.

32 Raúl Jiménez and David Lopez Soto, "Barriers to Electrification in Latin America", IDB Blogs, June 21, 2016. https://blogs.iadb.org/energia/en/barriers-to-electrification-in-latin-america/

33 In Peru, as an example, at the end of May it was estimated that more than 60% of energy consumers, did not pay their receipt to the distribution company.

electricity generation players: they risk to be involved into a cascading effect of having very large account receivables from the distribution companies, who then cannot remunerate generators, which might be forced to suspend the activities.

This outlook has necessarily to be avoided by supporting these companies to absorb the financial and operational shocks experienced during the emergency and to contribute to relaunch their activities in a responsible and sustainable manner. Electricity firms, indeed, are not only fundamental to maintain a number of services necessary to manage the current crisis, but they will be also instrumental – through their investments – to economic recovery and improvement of societal conditions of Latin America once the emergency will be over.

Post-COVID obstacles to green transformation

The debate over the impact of the COVID-19 pandemic on the pathway towards decarbonization has reached a global scale. National, regional and international institutions, private sector, research and academia, financial sector, civil societies and NGOs seem all aligned in stressing the importance of using the current crisis to push towards a more sustainable, reliable and affordable energy sector. Governments all across the world are called to implement a number of stimulus packages in order to boost the economy, which in Latin America could experience a larger than expected contraction in regional gross domestic product (GDP), around 5.3% according to ECLAC,[34] and avoid depression. The risk that short-sighted emergency-driven responses to promote the economic recovery are adopted cannot be discarded, in Latin America as well as elsewhere. The strategic vision government and companies will embrace, the investments they will decide to prioritize, the technologies they will focus on, represent the turning point at the continental level either to boost decarbonization through the energy transition or to dramatically step back in the construction of a sustainable and equitable system.

As described above, the most obvious result of the economic crisis on the electricity sector is the reduction of the demand, since every form of economic activity requires electricity, directly or indirectly. Industry revenues are set to decline, as utilities decide to voluntarily halt shutoffs due to bill non-payment approved by governments and deferring planned or proposed rate increases. With no (or wrong action) from governments, this slump in electricity demand and financial inflows is expected to hurt new renewable installations in Latin America as well as in the rest of the world. While utilities will tighten their budgets and defer investments in new renewables energy projects, firms producing solar cells, wind turbines, and other low-carbon technologies will shelve their growth plans and adopt austerity measures.

34 ECLAC, COVID-19 Special Report: "Measuring the impact of COVID-19 with a view to reactivation", 2020.

It is not an exaggeration saying that decisions and policies adopted by governments today in response to the COVID19 emergency risk to lock the sector into the ways it currently produces energy and emits carbon for years, and perhaps even decades, to come. Under these emergency conditions, the temptation for public authorities to embrace short-term conservative responses in order to meet "at-any-costs" the immediate needs of the population and the companies is high, and it might lead to the extension – or even the expansion - of the old energy system that has led parts of Latin America (countries like Brazil, Chile or Mexico can be certainly considered virtuous examples in terms of energy policies) in a critical situation regarding universal access, volatility of prices, quality of services and carbon intensity. It could also act as a push-back on climate-change targets for countries and industries in the region.

The recent collapse in oil prices, which increases the allure of fossil-fuel-based consumption in the economic recovery phase, particularly in emerging economies, is certainly the most relevant obstacle to a sustainable recovery. Renewables are almost everywhere the cheapest source of electricity today[35] and - as highlighted by the Enel Foundation-CESI research series mentioned in the introduction - this is particularly true in South America where the levelized cost of energy (LCOE) of solar and wind in many countries is expected to be under 30 $/MWh in 2030.[36] Notwithstanding that, the regional legacy on fossil fuels is not always easy to overcome. For new generation capacity in places where policies do not effectively support renewable energy (or, rather, fossils are largely subsidized by governments such as in the case of Peru), extending or even adding new oil, gas or coal generation could be still competitive. As a case in point in the short-term, due to collapsed oil prices, replacing dirty and inefficient diesel generation with more sustainable technologies (i.e. a combination of solar power and storage capacity) might not be necessarily as attractive as it was a year ago. This situation looks particularly challenging in rapidly developing countries and in emerging markets, which – particularly in the immediate aftermath of a major economic slump - are highly sensitive to energy costs and where the undiscussed priority of policy-makers and businesses is to expand electricity supply as cheaply and quickly as possible.

Looking with greater attention to Latin America, the recent fall in the prices of fossil fuels is upsetting the incentives that should support a transition towards sustainability, and this will last for a period of uncertain duration. Across the continent, the fossil industry and the energy-intensive sectors are adopting a two-track approach to tackle the crisis: on the one hand, by asking for public funding to bailout their financial losses, as bankruptcies may imply loss of massive investments; on the other attempting to roll back environmental standards, reduce taxation, and offload high cost assets onto the taxpayer. Although it is against the decarbonization process undertaken at the regional level, national governments might be tempted to follow this emergency-driven path in order to avoid further economic losses and to exacerbate poverty and inequalities, while possibly ad-

35 Kingsmil Bond, "COVID-19 and the energy transition: crisis as midwife to the new", Carbon Tracker Blog, 7 April 2020. https://carbontracker.org/covid-19-and-the-energy-transition/

36 Enel Foundation, "Research Series on variable renewables (VRES) and grid interconnection in South America" Enel Foundation, Rome, October 2020. https://www.enelfoundation.org/topic/a/2019/05/new-series-of-studies-on-potential-for-renewable-development-and

ding (or at least resuming) immediate jobs and revenues flows. In the short-term a similar approach could help public authorities to expand and maximize the rents derived by the extraction of fossil, either to meet domestic energy demand and boost recovery or to increase exports that – despite the current low prices – could guarantee significant and valuable financial revenues to flow into the countries.

The low levels of oil, gas and coal prices, which have been further depressed by the economic crisis determined by COVID-19, could encourage also Latin America fossil importers to consider backward energy solutions, preferring a revival of hydrocarbons rather than an expansion of green energy. In the very short term, low prices will of course stimulate a pick-up in demand from the current depressed levels and contribute to restart the economies. A country like Peru, for instance, in order to restart rapidly its mining production – which accounts for 10% of the GDP – in the short term might consider to take advantage of cheap fossils to push the sector back to pre-COVID production (and, unfortunately, emissions) levels. In the current market conditions, maintaining or even strengthening the pre-existing energy sector patterns could be seen as the easiest way to tackle – at least partially – the social and economic inequalities already affecting the region and amplified by the pandemic. Also the issue of liquidity and solvency of the electricity sector in Latin America might push towards a conservative usage of public funding for recovery, by favoring financial flows to bailout or support the business-as-usual utilities and limiting investments in more innovative assets and capacity such as renewables, storage systems, smart and resilient grids and demand-response services.

However, such an approach would contribute to amplify the negative effects of pollution and climate change over people and businesses, exacerbating inequalities and preventing the establishment of a sustainable recovery and development pathway.

Opportunities and benefits of a green restart

Despite some potential – though still debatable – short-term advantages of an emergency-driven approach based on the retention/revival of fossil fuels across Latin America, the social, economic, environmental and public health benefits of a regional recovery grounded on energy transition and decarbonization are undeniable. One of the key lessons learned of the ongoing COVID19 emergency is indeed the deep interconnectedness of health, climate and sustainability issues, and how this nexus affects people in terms of societal inequities. This situation shows that as terrifying and destructive as this global health crisis can be, it is just a small portion of the increasingly severe disruptions that climate change will bring to the region (and to the World's) future.

For this reason, any response governments, international organizations and the private sector are planning to address the health and socio-economic disruptions generated by the pandemic, these must necessarily factor in decarbonization and energy transition targets and parameters. Despite certain conservative arguments justifying push-back policies, economic recovery and decarbonization approaches are not mutually excluding but, rather, they are self-reinforcing.

The fight against climate change is certainly the most important factor to be considered while looking at the benefits of a green recovery in Latin America. Along with its dramatic outcomes in terms of human fatalities and economic disarray, the COVID-19 pandemic has already contributed to slash greenhouse gas emission across the world. In early April, under peak coronavirus lockdown, global daily carbon dioxide emissions from energy use and heavy industry fell by 17%.[37] In China (which was reached earlier by the economic effects of the emergency), in February lower coal and oil consumption resulted in a 25% decline in carbon emissions, equals to 200 million tons of CO_2.[38] While disaggregated data are not available, the carbon emissions contraction in Latin America seems to be in line with global trends.[39]

Also projections for the future look encouraging from a climate-perspective, as according to the International Energy Agency (IEA) global emissions will fall by 8% - equals to 2.6 giga tons of CO_2 by the end of the year, which is in absolute terms the greatest yearly reduction since data on greenhouse gases are recorded. This drop, if accompanied by sound sustainable recovery policies to push the regional decarbonization pathway, is certainly a positive outcome emerging from the COVID-19 crisis. However, although widely recognized as fundamental, today this aspect might not appear sufficient to justify greater ambition for two main reasons: 1) the mid-to-long term perspective of the climate change and the risks related to it, which might (wrongly) appear less urgent than other short-term humanitarian, social and economic issues. 2) the limited contribution of Latin America to the global CO_2 emissions levels.

37 Tyndal Center for Climate Change Research, "*COVID-19 crisis causes 17% drop in global carbon emissions*", 18 May 2020. https://tyndall.ac.uk/news/covid-19-crisis-causes-17-drop-global-carbon-emissions
38 Myllyvirta, 2020
39 Tyndal Center for Climate Change Research, "COVID-19 crisis causes 17% drop in global carbon emissions", 2020

Trying to move beyond these arguments, there are a number of factors suggesting that the continent will benefit from a faster and more ambitious energy transition process.

Costs and profitability. The costs of renewables are declining everywhere, and this is also the case of Latin America.[40] Wind, solar, but also storage systems are experiencing a significant contraction in terms of prices: the green energy endowment of the region is very high, as shown by the appetite of public and private investors before the crisis. According to IRENA, Latin America has seen significant investment in renewable energy in recent years, accounting for more than US$ 80 billion in the period 2010-2015,[41] while in 2018 it was the second region of the world[42] in terms of climate finance committed by multilateral development banks (MDBs) with US$ 8.77 billion, equals to 20% of total committed by MDBs at the global level.[43].

A recent study by Enel Foundation estimated that in 2030 the optimal installed capacity – from both a technical and economic point of view – of variable renewables (VRES) can reach almost 50 gigawatt (GW) for PV and 71 GW for wind in the main countries of the region (i.e. Argentina, Brazil, Chile, Colombia, Ecuador, Peru and Uruguay), covering together about 25% of the total electricity demand.[44] With respect to the targets and forecasts presented in the generation and transmission development plans of each country, these optimal amounts correspond to an increase by 150% of PV installed capacity and by 75% of wind power plants.

In the mid-term, the economic benefits due to these additional VRES plants can be estimated in about US$ 3.6 billion by 2030, considering the fuel savings and the annuity of the investments needed for the additional VRES capacity. Furthermore, the calculated optimal amount of VRES plants reduces the emission of about 85 million tons of CO_2 in the atmosphere per year.

Fossils phase-out. The crisis offers the opportunity to reduce the reliance on fossil fuels (as already demonstrated by Enel's decision to accelerate the phase-out of Bocamina coal-fired power plant, in Chile, to be replaced by 2 GW of renewable power capacity[45]) and to get rid of the price volatility which characterized these commodities in the last few years, allowing the system to bounce back greener and more resilient. In the short-term, today's low prices might encourage importers to increase the contribution of cheap fossils to the economic and electricity sectors (while, on the contrary, exporters could eventually decide to effectively diversify their economies, progressively scaling down the weight of oil, gas and coal on their budgets). However, current cut in investments will probably create a price rebound with negative impact on the economic systems of importers. This is

40 IRENA, "Renewable Power Generation Costs in 2018", IRENA, Abu Dhabi, May 2019. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/May/IRENA_Renewable-Power-Generations-Costs-in-2018.pdf

41 IRENA, "Renewable Energy Market Analysis: Latin America". IRENA, Abu Dhabi, 2016.

42 African Development Bank et al., "2018 Joint Report on Multilateral Development Banks Climate Finance", June 2019.

43 Sub-Saharan Africa ranked first with US$ 8.9 million, accounting to 21% of global MDBs climate financing.

44 Enel Foundation, "Research Series on variable renewables (VRES) and grid interconnection in South America", October 2020.

45 Enel, "Enel Group accelerates closure of its last coal-fired plant in Chile", 28 May 2020. https://corporate.enel.it/en/media/press/d/2020/05/enel-group-accelerates-closure-of-its-last-coal-fired-plant-in-chile

therefore the right moment for them to cut subsidies on oil, gas and coal in order to allow renewables to compete - and win - also in the short-term, leading to a progressive replacement of fossil fuel usage in the mid-to-long term perspective. Public money saved from subsidies could be invested elsewhere such as in schools and hospitals, in order to level huge social inequalities that affect large parts of the continent. The expansion of renewable capacity could, by contrast, reduce the negative effects of price volatility or future shocks, providing greater stability and reliability to the electricity services and increasing the resilience of people and companies.

Energy poverty. Promoting investments in renewables and interconnections contributes to increase access to electricity and improve energy poverty rates. The continent is still characterized by a gap in the access to electricity and clean cooking services, with around 110 million people affected by these problems.[46] By their own nature, renewables can be instrumental to ensure access to (or better) services to those areas or groups of people which are mostly affected by this issue. Also essential social usages as public health, education and learning, improved communications, which might drive up additional households electricity demand also from the poorest parts of the societies, could be met by flexible electricity services.

Jobs creation. The expansion of distributed renewable generation and smart transportation infrastructure ensures occupational benefits and overall positive impact on the economies both in the short- and long-term.[47] The regional energy sector has tens of billions of dollars of projects at different stages of development, expected to employ tens of thousands of people once they are reactivated. According to "Transforming Energy Scenario" developed by IRENA in its Global Renewables Outlook, in Latin America the employment rates in energy transition-related technologies will rise significantly against that of conventional technologies, reaching a share of 72% jobs in RES (the second highest rate at the global level after Southeast Asia). By 2050 the sector is expected to employ 3.2 million people, almost 8% of total jobs in the continent.[48]

Pollution and health. Speeding up decarbonization reduces local pollution and contributes to improve health conditions. The WHO lists air quality as the greatest environmental risk to health at a global level. In addition, 92% of the world's population reside in areas where air quality levels exceed WHO limits, with more than 7 million people dying for PMx and NOx every year. In addition to this, another fundamental factor emerging from the COVID emergency is the impact of pollution on the health of people and the vulnerability of weaker parts of the society vis-à-vis similar health crises. Recent studies have shown that PM pollution may accelerate contagion, and is one of the main risk factors for several illnesses associated with COVID-19 comorbidity high mortality rates.[49] One of the main factors

46 According to OLADE, in Latin America 21 million people are still without access to electricity, while 88 lack of modern clean cooking facilities. See OLADE, "Energy access and affordability voluntary action plan for Latin America and the Caribbean", 2018.

47 Cameron Hepburn, Brian O'Callaghan, Nicholas Stern, Joseph Stiglitz and Dimitri Zenghelis, *Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?*, Oxford University, 2020.

48 IRENA, "Global Renewables Outlook: Energy Transformation 2050", IRENA, Abu Dhabi, 2020. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Apr/IRENA_GRO_Summary_2020.pdf

49 Xiao Wu at al., "Exposure to air pollution and COVID-19 mortality in the United States: A nationwide cross

causing PM pollution is use of fossil fuels for energy uses (propulsion, heating, cooking). Also cheap biomass, largely used among the poorest across the region, is responsible for large PM emissions, thus representing a suboptimal solution to sustainably meet the energy needs of people. Similar line of reasoning for NOx which are poisonous ***per se*** and also are a precursor for PM. In this context, renewable generation coupled with electrification of energy uses – i.e. the deployment of EVs with electricity generated by RES - curbs not only CO_2 emissions but also pollutants, contributing also to improving standards of local health and overall societal resilience vis-à-vis future diseases.

Regional integration. The COVID-19 pandemic has demonstrated the extreme fragmentation of the Latin America political and socio-economic systems, a situation that prevented the countries to adopt joint responses and gather common resources to tackle the crisis. Interconnecting the regional electricity system offers benefits at different level. First and foremost, grid interconnections contribute to the optimal operation of the system allowing the usage of cheapest generation resources and limiting the risk of RES production curtailments.[50] In a context of economic stagnation, investments in smarter and more resilient interconnections[51] transporting cheap renewable electricity offer a stimulus to a faster recovery, increase the competitiveness of countries, and help fighting socio-economic inequalities, by ensuring sustainable, reliable and affordable energy services also to those parts of the society that are currently excluded.

sectional study", T.H. Chan School of Public Health, Harvard University, 2020. https://projects.iq.harvard.edu/files/covid-pm/files/pm_and_covid_mortality_med.pdf

50 Enel Foundation, "Research Series on variable renewables (VRES) and grid interconnection in South America", October 2020.

51 According to IDB, to connect new end-users to electricity generators, Latin America needs to invest between US$51 billion and US$79 billion in new power grid s, which translates into a range of 335,000 km to 553,000 km, depending on the trend that demand will follow in coming decades. See Rigoberto Ariel Yépez-García, Yi Ji, Michelle, The energy path of Latin America and the Caribbean, IDB, 2018. https://publications.iadb.org/publications/english/document/The_Energy_Path_of_Latin_America_and_the_Caribbean.pdf

Recommendations

While heavily impacted by the effects of the COVID-19 pandemic, national governments and international organizations are called to elaborate, put in place and implement recovery strategies that will help businesses and people to rapidly bounce back from the crisis, possibly stronger and more resilient and sustainable than they were before. Therefore, the so-called recovery packages adopted all across the world are expected to put energy transition and the fight against climate change at the center of their agendas. In a situation of widespread economic slowdown, and without sustainability-oriented recovery policies (and actions), the private sector might be discouraged to invest sufficiently in clean technology and decarbonization solutions, pushing emissions up and putting at risk the achievement of the Paris goals.

Despite being extremely heterogeneous in terms of macro-economic profiles, socio-economic dynamics and energy transition strategies, Latin American countries should be encouraged to adopt a number of policies and measures that might help them individually, but also the continent as a whole, to strengthen sustainable and reliable energy services for all, allowing their economies and societies to bounce back greener and more resilient.

The following is a, probably non-exhaustive, list of recommendations:

- Apply strict **"green" conditionality rules** to any type of loan, grant and public funding, not only to the energy domain, but to all the sectors and sub-sectors of the economy (and of the society), in order to encourage the adoption of low-carbon technologies, services and practices in all their activities.
- Promote access-to-finance schemes (accompanied by adequate regulatory frameworks) that encourage the private sector to **accelerate the phase-out of coal-fired power plants** and its replacement with renewable generation capacity.
- Take advantage of the low prices of to **cut fossil fuels subsidies** and allow renewables to fairly compete, speeding-up the full removal of carbon-intensive energy options.
- **Use financial resources available from cuts in fossil fuels subsidies** to reduce energy – and more generally socio-economic – inequalities and boost economic recovery, to the immediate benefit of businesses and citizens.
- **Simplify and speed up procedures to authorize "green" investments** and project development.
- Fine-tune regulations at national and international level that **enable higher flexibility and coordination in electricity markets**, in order to ensure that economic and technical benefits of renewable energies and smart grids can be fully achieved (and enjoyed by consumers).
- Promote jointly planned public-funded multi-country initiatives (and harmonize policies and regulations at international level) to **facilitate cross border power flows**, thus helping optimize renewables penetration and address resilience exigencies of all the parties involved.

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