

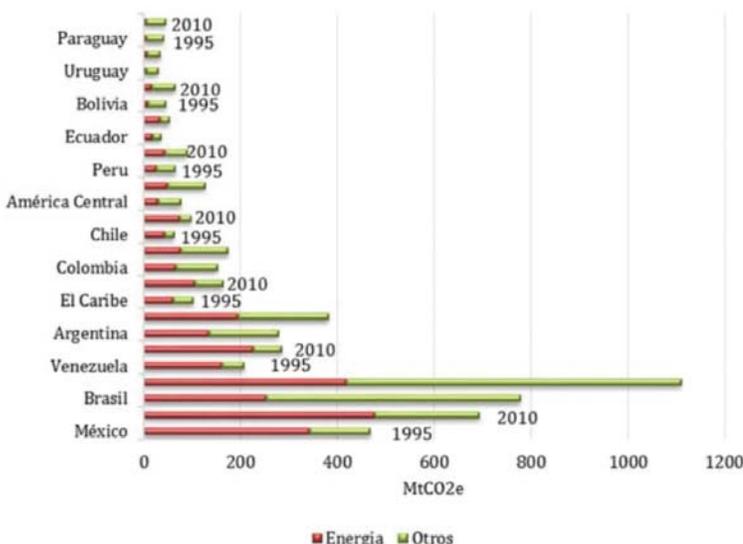
Beyond Paris: Energy Transition in Latin America and the Caribbean

The Paris Agreement signifies a watershed moment in the global effort to tackle climate change. Its wide-reaching nature, emphasis on both developed and developing nations, and ongoing review mechanisms have put countries on a path towards mitigation and adaptation to a warming planet. Still, more must be done. For Latin America and the Caribbean, the latest agreement is an important marker but represents just one facet of a much broader process already underway, particularly in the energy sector.

Latin America and the Caribbean is a region especially vulnerable to climate change, from the collapse of coral bio systems and sea level rises, to elevated temperatures and changing precipitation in the Andes and Amazon. A changing climate also means more extreme and unpredictable weather events. Latin America’s hydropower dependence is already being tested by longer and more intense droughts. Caribbean islands will experience natural disasters with increasing intensity in the coming decades. Across the region, the costs of inaction will be unprecedented.

Energy is the dominant contributor to the region’s greenhouse gas emissions, particularly outside Brazil (see Fig. 1). While Latin America is only responsible for around 10 percent of global greenhouse gas emissions, ongoing industrialization, fossil fuel production, and transport sector expansion will cause this figure to rise before 2020.

Fig. 1: Greenhouse Gas Emissions in Latin America by Source



Source: Economic Commission for Latin America and the Caribbean

Latin America and the Caribbean is a heterogeneous region, economically and politically, as well as in terms of energy resources and policy. Some countries have made significant strides in the deployment of renewable energy and innovation in alternative fuels and energy efficiency. Others lag behind. The International Renewable Energy Agency, IRENA, estimates “doubling the share of renewable energy by 2030 could deliver around half the required emissions reductions and, coupled with energy efficiency, keep the average rise in global temperatures below 2C”. This would be in line with the goals of the Paris accord.

For Latin America and the Caribbean, the energy transition is essential for achieving the region’s emissions reductions targets and will pave the way for eventual decarbonization. The development of local renewable resources would have the added benefit of boosting energy security for the countries currently reliant on fossil fuel imports.

Many of the barriers to success in Latin America and the Caribbean are already well known. The region’s economic outlook has dimmed and some countries are struggling with domestic political crises. Energy infrastructure is outdated and inadequate. The region’s oil producers have been particularly vulnerable to the fall in global oil prices. Latin America and the Caribbean, as elsewhere, must also overcome significant financing hurdles and frequently inadequate or nonexistent renewable energy and energy efficiency markets.

For the Latin American countries rich in traditional, fossil fuel resources, an additional challenge is to balance the economic prospects presented by increased exploration and production, with the longer-term benefits for the economy, health, and climate of gradually decarbonizing the energy sector. The implications of the Paris Agreement on Latin America’s heavy oil producers – such as Venezuela – could be particularly acute. Major coal producers such as Colombia are also feeling the impact of changing markets.

Based on the ensuing analysis, the Institute of the Americas makes four recommendations for accelerating the region’s energy transition and meeting its climate goals:

- Extend renewable energy policies beyond the power sector
- Design and enforce efficiency policies across transport, industry, and energy
- Develop clean energy financing opportunities
- Foster sustainable public-private partnerships

These recommendations should guide policymaking along the energy value chain.

Paris Climate Agreement

The agreement that resulted from the COP21 talks in Paris could be a turning point for climate action, not least in Latin America and the Caribbean. The Paris Agreement, which is open for signature until April 2017, diverges from previous efforts in several ways. While the agreement sets a common goal – “holding the increase in the global average temperature to well below 2 °C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5 °C” – individual countries determine their own mechanisms for achievement. Importantly, countries will be required to submit new Intended Nationally Determined Contributions, or INDCs, every five years. This monitoring and review process represents a significant departure from previous accords.

While the INDCs vary across Latin America and the Caribbean, most nations agree that a transition to a low-carbon economy is not only necessary but urgent, and that the private sector will be a critical partner in achieving this goal. The region’s policymakers must not waste the opportunity to galvanize support for the energy transition, just as business leaders can take advantage of investment opportunities generated by expanding clean energy markets.

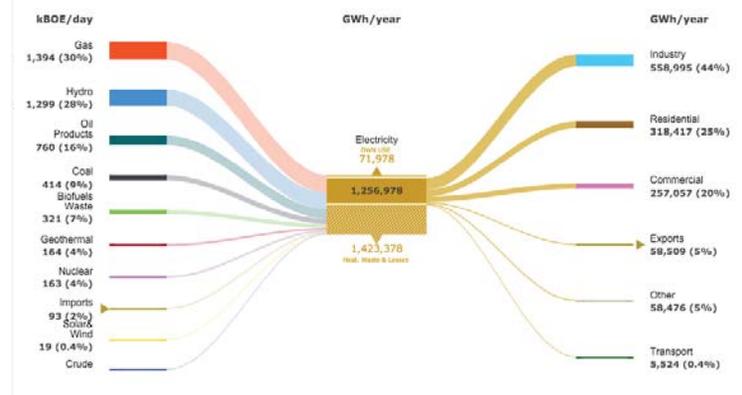
The focus of this report is on Latin America and the Caribbean’s efforts to move to a low carbon future. Despite some progress, more can be done to transform the region’s economies to be more resilient to climate change and to reduce emissions in the energy sector. These include a move towards decarbonization of the electricity matrix, electrification of the transport sector, increased energy integration, and energy efficiency. Regardless of each individual nation’s starting point, every country in Latin America and the Caribbean has room to improve.

It is important to note that the country- and region-wide initiatives are influenced by other global processes, including the Sustainable Development Goals and the Sustainable Energy for All (SE4ALL) initiative, with their own set of targets and indicators for access to energy, clean energy deployment, and energy efficiency, among others.

Energy Transition in Latin America

Latin America’s energy matrix is often characterized as the world’s cleanest. In part this is due to the region’s reliance on hydropower, which accounts for almost a third of electricity generation (see Fig. 2). Lower levels of private vehicle ownership and use of public transport in the highly urbanized region are also important factors. Of the 26 countries surveyed by Bloomberg New Energy Finance’s annual Climatescope report, 10 countries have implemented clean energy goals. Across the region, nations have rapidly increased renewable deployment

Fig. 2: Latin America’s Electricity Matrix, 2012

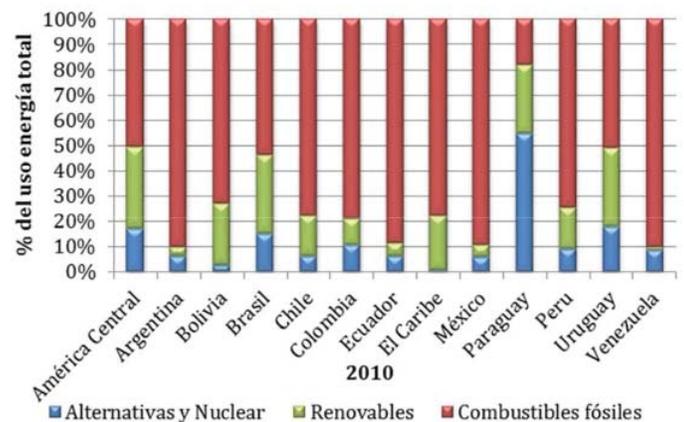


Source: Inter-American Development Bank

in the last decade, in particular from non-conventional sources, such as wind and solar.

Outside the power sector, fossil fuels remain an important contributor to the energy matrix, driven by industry, energy production, and transport (see Fig. 3). Moreover, as the transport sector continues to grow, hydraulic resources become less reliable, and new projects are put on hold due to political and environmental backlash, the portion of fossil fuels is likely to grow.

Fig. 3: Latin America’s Energy Demand by Source



Source: Economic Commission for Latin America and the Caribbean

In a region with no shortage of renewable energy resources, some countries have made significant progress in the last five years. Costa Rica, Honduras, and Uruguay have excelled in making the transition to clean power. Wind power has dominated recent power auctions in Brazil. Other countries have done little, such as oil-rich Venezuela, which has the highest per capita emissions in Latin America. Meanwhile, Mexico and Argentina, both endowed with fossil fuel reserves, find themselves at a crossroads as new governments try to balance the exploitation of natural resources with a transition to cleaner energy.

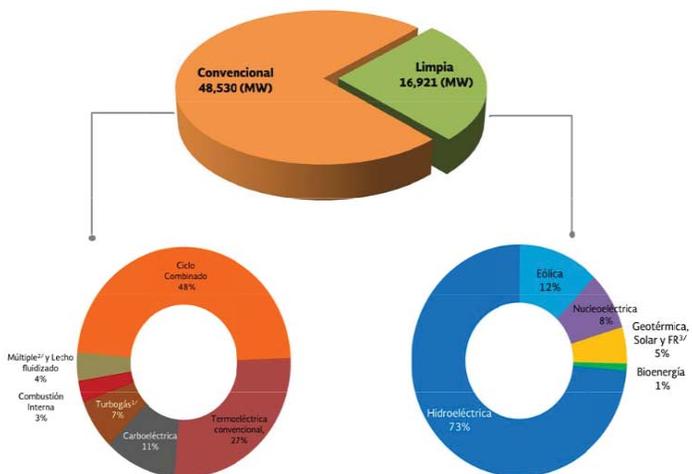
Small island states in the Caribbean face a raft of unique challenges based on historic dependency on petroleum and exceptional vulnerability to climate change. In light of this, several Caribbean states are looking to increase the contribution of natural gas, solar, wind, and geothermal, as well as studying innovative alternatives such as deepwater cooling.

Mexico

At the global level, Mexico’s initiatives to combat climate change have been highly visible. Mexico enacted a General Law on Climate Change in 2012 and was the first developing country to submit its INDC in 2015. Yet the last year has also seen Mexico undertake an historic energy reform process that promises a massive influx in private investment to exploit previously untapped oil and gas reserves. The reforms will open private investment opportunities in the power sector, including renewable generation, and will create Clean Energy Certificates modeled after California’s successful renewable portfolio standards and renewable energy certificates. Still, uncertainty remains over the extent to which this will foster a transition to a cleaner energy future.

In 2010, Mexico was responsible for less than 2 percent of global greenhouse gas emissions. The energy sector was responsible for approximately 67 percent of the total, up from 57 percent in 1990. Overall, fossil fuel consumption contributes over 82 percent of Mexico’s CO2 emissions according to the National Institute for Ecology and Climate Change (INECC). The vast majority of this is accounted for by transportation, power generation, and energy consumption by the energy sector itself. As Fig. 4 illustrates, almost 75 percent of Mexico’s electricity is still generated from fossil fuels.

Fig. 4: Mexico Generation Capacity by Source, 2014



Source: SENER Mexico

Mexico’s INDC mandates a 22 percent reduction in greenhouse gasses and 51 percent reduction in black carbon below business as usual by 2030. This is consistent with the goal established in the General Climate Change Law of 50 percent reduction in greenhouse gas emissions by 2050.

Mexico’s Energy Transition Law was the final piece of energy reform legislation to be passed in December 2015. In conjunction with the General Climate Change Law, the new framework will guide Mexico’s energy transition, superseding previous legislation on renewable energy. Mexico has set a target of 25 percent of electricity generation from “clean energy” sources by 2018, rising to 30 percent by 2021, and 35 percent by 2024. It should be noted that “clean” energy includes large-scale hydropower, nuclear power, and efficient co-generation (from natural gas). Within this scope, Mexico should easily achieve its goal (see Fig. 4).

Renewable energy development – excluding large-scale hydropower and nuclear power – is further behind. The most promising aspect of the reforms for renewable energy has been the Clean Energy Certificates (CELs). Renewable power experts have raised several concerns as regulators prepare for the first power auction under the new market rules. At just \$70 per MWh for power and CELs, they argue that solar and geothermal projects will be priced out. Mexico’s power regulator, CRE, has indicated it will review the terms if the first auction disappoints. In the meantime, it is likely most renewable power growth will come from legacy projects rather than as part of the energy reforms.

Argentina

Argentina’s energy sector, like its economy, has faced a series of challenges in the last decade. President Mauricio Macri, elected in November 2015, has promised to turn the nation’s fortunes around, from expanding oil and gas development, to reducing natural gas and power subsidies, to deployment of renewable energy.

A new renewable energy law (Ley 27191) proposes a target of 8 percent generation from renewable sources by 2017 and 20 percent by 2025. While these targets may seem small, Argentina would be building from a base of 1 percent today (excluding hydropower). Currently, Argentina generates 23 percent of its electricity from hydropower, 72 percent from fossil fuels, and 4 percent from nuclear. Almost 90 percent of Argentina’s overall energy production comes from oil (37 percent) and gas (51 percent). The announcement of plans to develop 3,000 MW of solar power in the northern province of Jujuy will be an important first step in changing this profile. Argentina has some of the most promising onshore wind potential in the world, particularly in Patagonia. A study by

the Argentina Renewable Energies Chamber argued that an additional 2,000 – 3,000MW of wind power would be competitive with other sources. The same study found that biomass could generate electricity at a sixth of the cost of diesel, most of which is currently imported.

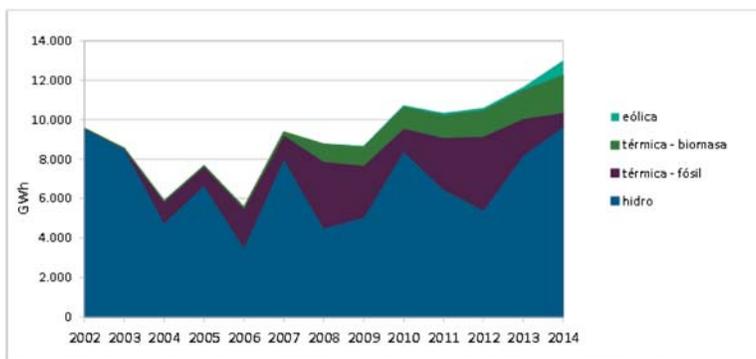
At the policy level, Argentina has a long path ahead in terms of developing the framework for identifying and monitoring renewable resource potential, as well as fostering private investment in the burgeoning sector. Promoting local energy sources over fuel imports can boost the local economy. While fostering opportunities for solar distributed generation would increase energy security in remote areas of the country.

Barriers to progress include the distance of resources from centers of consumption, as well as environmental considerations in fragile natural areas. Access to credit, uncertainty in regulatory frameworks, and pricing in contracts are additional hurdles for Argentina to clear as policymakers move forward.

Uruguay

Uruguay received considerable attention for its renewable energy achievements at the COP21 talks in Paris. Renewable energy coupled with hydropower accounted for 94 percent of Uruguay's electricity generation in 2015. In 2014 alone, wind generation climbed from 1 to 6 percent. This figure will continue to rise. Solar power is slowly increasing but still comprises less than 1 percent of power generation. Biomass also plays an important role with co-generation plants increasingly powering agricultural industry. Uruguay is making an effort to diversify its power matrix to counter the wide variability in hydraulic resources (see Fig. 5).

Fig. 5: Uruguay's Electricity Generation by Source



Source: Ministry for Industry, Energy and Mining, Uruguay

Despite advances in the power sector, petroleum products still account for 42 percent of Uruguay's final energy consumption. The development of an LNG terminal has the potential to displace some of this petroleum consumption with natural gas, lowering emissions. In 2010, the energy sector accounted for 94 percent of Uruguay's CO2 emissions. The nation's INDC commitments require a 25 percent reduction in 1990-level emissions by 2030.

The Uruguayan case is particularly pertinent as it underscores the continued challenges of reducing emissions outside the power sector, and the vulnerability for countries reliant on hydropower. However, the diversity of energy sources coming online is a step in the right direction, as is the focus on complementary wind and hydro generation. One of the benefits of greater integration in the Southern Cone and eventually the South American continent is that it could significantly reduce this risk factor.

Chile

Chile has enacted one of the more ambitious targets in South America, with the goal of generating 60 percent of its power from renewables by 2035 and 70 percent by 2050. Chile, unusual in Latin America, generates 41 percent of its electricity from coal. Over the last decade, the proportion of fossil-fuel generation (coal and natural gas) has increased relative to hydropower (34 percent). For a nation that imported 90 percent of its fossil fuels in 2014, increasing the share of renewables has financial benefits as well as environmental and social. Chile's ongoing problems with hydropower – the controversial Hidroaysén project in Patagonia has been shelved – mean the nation must focus on wind, solar, geothermal, and innovations in new areas such as marine and tidal power in order to achieve its goals.

Chile's INDC commits the country to reducing CO2 emissions by 30 percent from 2007 levels by 2030. This means significant changes for mining, transport, and power generation, which together account for around 75 percent of emissions. The nation's Energy 2050 agenda outlines several more renewable energy, efficiency, and access targets for the coming decades.

Dominican Republic

The Dominican Republic, like many small island states, is exceptionally vulnerable to climate change. And as with many nations in the Caribbean, the Dominican Republic has historically relied on diesel and fuel oil for power generation. Significant exposure to the economic vagaries of global oil markets and detrimental health impacts have driven a switch to natural gas. A combination of natural gas, district heating and cooling, wind energy, biomass and other non-conventional renewable resources has the potential to transform the nation's energy matrix. Since the inauguration of an LNG terminal in 2003, natural gas has grown from virtually none to 30 percent of the power matrix. According to the operator, AES, the switch from oil to gas is saving the Dominican Republic \$600 million per year. However, the energy matrix is still dominated by fossil fuels.

The Dominican Republic also has significant wind and solar resources, though they remain underdeveloped. A World-

watch Institute study estimates that the Dominican Republic could satisfy 85 percent of its power needs with renewables by 2030 with significant cost savings. As part of the Paris Agreement, the country has committed to reducing emissions by 25 percent of 2010 levels by 2030.

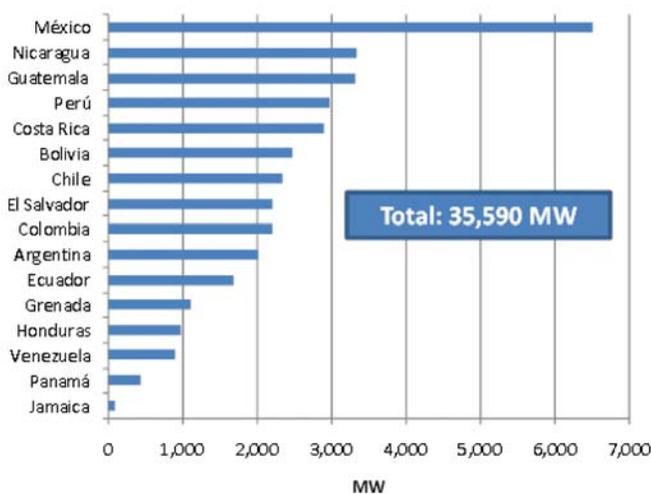
Coastal resort areas in particular are being targeted for efficiency measures and alternative cooling systems. One idea being studied by CAF involves pumping deepwater from the Caribbean. The system is renewable – water is cycled back to the ocean – constant, and reliable, and would dramatically reduce power consumption for air conditioning.

Additional Considerations

Geothermal energy has played a less prominent role in discussions around renewable energy in Latin America and the Caribbean, despite the region’s resource potential. According to regional energy agency, OLADE, Latin America and the Caribbean have a combined geothermal potential of over 35,000 MW. Much of this is concentrated in Mexico, Central America, and the Andes (see Fig. 6).

Across the Andes, governments are conducting feasibility and pre-feasibility studies of geothermal heat and power. The benefit of geothermal energy over solar or wind is its reliability, and capacity to provide baseload power. Mexico has passed a Geothermal Law as part of its energy reform package in the hope of spurring investment, although other factors discussed above will likely limit progress in the short term. Geothermal power has the potential to transform nations with limited traditional energy sources, such as islands in the Caribbean, and El Salvador, which has set a goal of generating 40 percent of its power from geothermal energy by 2019.

Fig. 6 : Geothermal Potential in Latin America and the Caribbean



Source: Latin American Energy Organization (OLADE)

There are also several studies underway to explore newer technologies in the region, including marine energy, tidal power, and next generation biofuels.

Latin American and Caribbean governments have been slow to embrace the benefits of distributed generation. Solar PV is a relatively inexpensive and fast way to boost renewable deployment at the household level. However, governments need to develop regulatory frameworks – and sometimes incentives – that facilitate the availability of this technology and ensure cost-effectiveness for consumers and providers. An important barrier is the persistence of fossil fuel subsidies and other tariffs across the region. At an estimated \$500 billion per year, subsidies continue to undermine the competitiveness for renewable technologies. In some cases, such as Mexico, confronting subsidy policies is required to fully unleash the potential for distributed generation across the full range of consumers.

Latin America must also take advantage of grid interconnection and energy integration to enhance energy security and reduce emissions. Energy integration is not a new phenomenon in Latin America but the Paris Agreement should renew a sense of urgency. The Southern Cone pioneered interconnection efforts in the 1990s, with many cross-border transmission and natural gas pipelines now lying dormant, often for political reasons. Several interconnection projects are underway to connect the Andes from Colombia to Chile. Central America’s SIEPAC grid and regional energy network has become a model for the region. Interconnections in the Southern Cone would take relatively little capital to reopen. While cross-border pipelines and LNG opportunities from South America to the Caribbean all give Latin America an edge over other regions, particularly in the developing world.

The potential benefits in terms of energy security and emissions reductions cannot be underestimated. A regional, interconnected grid would allow for countries to better manage renewable resources’ intermittency across complementary hydrologic systems and climates, allowing generators to bring more renewables online. Interconnection also increases efficiency and limits system losses, which would reduce emissions from the power sector overall.

Transportation

Electrification of the transport sector is considered a critical step in decarbonizing the energy sector. But while experts argue that transportation is ripe for disruption, many have criticized governments in the region for a lack of ambition. One criticism of Mexico’s Energy Transition Law, for example, is that the legislation is largely limited to the power sector. Now is the time for policy action as final energy consumption

in Latin America's transport sector is growing. However, such a transformation would require overcoming significant infrastructure, technology, and financing challenges.

Given Latin America's high level of urbanization and widespread usage of public transport in cities, transport sector emissions per capita are already lower than in the United States or Europe. Electrifying a fleet of buses or a rapid transit system is a less onerous task than tackling individual vehicles. Latin American cities are already becoming models for innovative rapid transport systems. Disruption of the transport sector is an area in which Latin America could take the lead.

One of the main barriers to electrification of transportation is the massive infrastructure investment required to expand the power sector to accommodate the increase in demand. Electrification of the transport sector would also require a national network of charging stations, and assumes continued technological advances in energy storage, including batteries, as well as reduced vehicle costs.

Increasing efficiency and reducing emissions in the transport sector must also go beyond cars, trucks, and buses, to include air and marine transport. Panama is hoping a new LNG terminal will offer bunkering services for ships transiting the Panama Canal as global efforts and shipborne propulsion emissions restrictions take effect.

Several ocean and airfreight companies, as well as commercial airlines have also pledged to reduce CO2 emissions. DB Schenker – a logistics firm – has signed agreements with several major shipping companies to reduce pollutants to 23 percent of 2014 levels by 2020, for example. The International Civil Aviation Organization, a UN body, has proposed global aviation emissions targets, a move that has been supported by some European airlines. These global efforts could be instructive for Latin America and the Caribbean.

Energy Efficiency

Increasing efficiency along the energy value chain is a critical component of reducing greenhouse gas emissions. The International Energy Agency estimates around 40 percent of emissions reductions required by 2050 could come from energy efficiency across the power sector, transportation, industry, buildings, and infrastructure. Until now, energy efficiency measures have largely been driven by cost. Climate factors must be a consideration going forward.

Governments across the region have established regulatory frameworks and institutions to develop and implement efficiency measures. Mexico's new Energy Transition Law, for

example, requires the National Commission for the Efficient Use of Energy, CONUEE, to establish new energy efficiency targets. The power to sanction noncompliance would send an important signal to private actors.

Chile has brought energy efficiency to the forefront of its energy agenda with a proposal to reduce energy consumption by 20 percent by 2025. Under a new Energy Efficiency Law – expected to pass this year – large consumers will be the first to feel the pressure. Chile's mining sector is responsible for an estimated 30 percent of electricity consumption. The transport sector, which is responsible 20 percent of energy consumption and an estimated 36 percent of the country's CO2 emissions must also be overhauled. Small changes, such as replacing a third of the city's 6,000 public buses with electrified vehicles would represent 60 percent energy savings.

Chile, like many of its neighbors, faces a shortage of qualified personnel with the capacity to design, implement, and monitor energy efficiency programs and mechanisms. Chile's regulators are looking to California's experience – where electricity consumption per capita has remained virtually flat since 1975 – as a model for developing an efficiency market at home.

A report by the Copenhagen Center on Energy Efficiency notes that energy savings of between 15 – 20 percent could be achieved in Latin America by implementing global best practices. In Latin America this also means a greater focus on demand side management, in particular smart grids, and changing consumer behavior at the large-scale industrial level as well as in small- and medium-seized enterprises.

Barriers to energy efficiency reflect challenges in other areas, including institutional and regulatory transparency, certainty, and continuity, financing, human capital, and a lack of tangible targets that are regularly measured and reviewed.

There are several regional and national initiatives in place, and a regional Database for Energy Efficiency Indicators (BIEE) established by the Economic Commission for Latin America and the Caribbean (ECLAC). Latin America is well aware of the benefits of energy efficiency but moving from ideas to results will take time.

Financing

Financing is one of the most tangible barriers to achieving global climate goals in Latin America as elsewhere. Governments and global corporations have pledged billions to the Global Climate Fund as well as several

private initiatives. However, much of this will be directed to regions more vulnerable than Latin America. Multilateral development banks, including the World Bank, Inter-American Development Bank and CAF, as well as national development banks such as Brazil's BNDES, have been important financiers in Latin America and the Caribbean. However, while loans and grants play a valuable role in climate financing and clean energy development, they must not preclude the development of strong regulatory frameworks that facilitate the leveraging of private capital and the creation of long-term sustainable markets in both energy efficiency and renewables.

Before the Paris climate talks, parties at the COP15 meeting in Copenhagen committed to mobilizing \$100 billion per year by 2020. The World Resources Institute estimates that while this goal is not impossible, in addition to commitments from rich countries under the UN Framework for Climate Change (UNFCCC), it would require significant private investment, multilateral bank financing, and climate-related overseas development assistance. The same trend holds for post-2020 climate financing.

Boston University's Global Governance Initiative estimates that the climate finance gap for Latin America and the Caribbean exceeds \$100 billion per year. The IDB announced in October 2015 it would double its climate financing to 25 – 30 percent by 2020. Much of this will be channeled through instruments to leverage private sector contributions.

Raising private sector investment is particularly important in Latin America as the region's middle-income status translates into less overseas development assistance. The role of regional development banks, such as the Inter-American Development Bank (IDB), CAF, and national banks such as BNDES in Brazil, will be critical.

Green bonds are becoming an important instrument to bridge the financing gap, particularly for smaller projects that may otherwise not be funded. The World Bank has already issued \$3.5 billion in green bonds in the region. The Green Climate Fund is issuing Energy Efficiency Green bonds aimed at leveraging \$780 million in private sector investment. The project, financed by the IDB and China Co-Financing Fund for Latin America and the Caribbean, will target Mexico as a pilot country, followed by the Dominican Republic, Colombia, and Jamaica.

By some estimates, the Paris Agreement could boost the global green bonds market from a record \$42.4 billion issuance in 2015 to exceed \$50 billion in 2016. Projects financed include renewable energy, energy efficiency, and green transport.

More importantly, Latin American governments must create the regulatory frameworks and business opportunities to encourage private investment in renewable energy, infrastructure, and efficiency markets to bolster long-term sustainable growth. This means ensuring certainty and transparency in rules and regulations, attractive contract terms for renewable power generation, and investment in transport initiatives. It also means fostering innovation and technology, a key component of the Paris Agreement that deserves greater attention, particularly in Latin America. Latin America's success stories could provide lessons for other countries in the region. Honduras, a relatively small market, now has the second greatest installed solar capacity in Latin America after Chile. In large part this is due to an enabling regulatory environment and favorable tariff structure. These experiences should be shared and encouraged as the region becomes more interconnected.

Recommendations

The Paris Agreement represents an historic opportunity to galvanize governments in Latin American and the Caribbean to pursue more ambitious renewable energy and energy efficiency policies. The following recommendations should be considered throughout the entire energy value chain and across Latin America and the Caribbean:

1. *Extend renewable energy policies beyond the power sector*
In order to achieve the deep emissions cuts prescribed by Paris Agreement as well as national targets, policymakers must facilitate a massive expansion in renewable energy both within the power sector and beyond. Latin American and Caribbean nations must advance the electrification of the transport sector, including rapid transport systems and private vehicles. Policymakers must also explore ways to reduce emissions in airfreight and shipping, such as alternative fuels and efficiency measures.
2. *Design and enforce efficiency policies across transport, industry, and energy sectors*
Nascent energy efficiency and demand side management policies must be expanded to address energy intensity in transportation, industry, and the energy sector itself. Many countries lack adequate efficiency targets and programs, or the means to monitor, enforce, or sanction a failure to comply. Latin America and the Caribbean can make early gains through implementing global best practices and efficiency standards in these areas.
3. *Develop clean energy financing opportunities*
A successful energy transition will require enormous capital inputs. Governments must do more to boost existing financing mechanisms as well as create opportunities for

national and foreign private investment in clean energy projects, and associated infrastructure and services. Policymakers must also review current barriers including access to credit, as well as subsidy and incentive structures.

4. Foster sustainable public-private partnerships

The private sector will be critical to the success of Latin America and the Caribbean's energy transition. Governments must create opportunities for collaboration with the private sector along the energy value chain. This means facilitating public-private partnerships on clean power projects and associated infrastructure, as well as developing opportunities for clean energy research, and creating space for innovation.

Selected References

Bloomberg New Energy Finance. 2015. "Climatescope 2015." Available at global-climatescope.org

Cámara Argentina de Energías Renovables (CADER). 2015. "La Hora de las Energías Renovables en la Matriz Eléctrica Argentina." Buenos Aires: CADER.

Copenhagen Centre on Energy Efficiency (C2E2). 2015. "Accelerating Energy Efficiency: Initiatives and Opportunities - Latin America and Caribbean." Copenhagen: C2E2.

D. R. Heres del Valle. 2015. "El Cambio Climático y la Energía en América Latina". Santiago: Comisión Económica para América Latina y el Caribe.

International Energy Agency (IEA). 2015. "Energy Efficiency Market Report 2015." Paris: OECD/IEA.

IRENA. 2015. "REthinking Energy: Renewable Energy and Climate Change". Masdar City: IRENA.

M. Konold, M. Lucky, et al. 2015. "Harnessing the Dominican Republic's Sustainable Energy Resources." Washington, DC: Worldwatch Institute.

Ministerio de Industria, Energía y Minería (MIEM). 2015. "Balance Energético Nacional 2014." Montevideo: MIEM.

Secretaría de Energía (SENER). 2015. "Programa de Desarrollo del Sistema Eléctrico Nacional 2015 – 2029." Mexico City: SENER.

W Vergara, J. V. Fenhann, and M. C. Schletz. 2015. "Zero Carbon Latin America: A Pathway to Net Decarbonization of the Regional Economy by Mid-century." Copenhagen: UNEP DTU Partnership.

M.I. Westphal, P. Canfin, A. Ballesteros, and J. Morgan. 2015. "Getting to \$100 Billion: Climate Finance Scenarios and Projections to 2020." Working Paper. Washington, DC: World Resources Institute.

F. Yuan and K. P. Gallagher. 2015. "Greening Development Finance in the Americas." Boston: Boston University Global Economic Governance Initiative.

The Institute of the Americas' Energy Program works to foster a deeper understanding of the most critical energy issues facing the Western Hemisphere. For more information and upcoming events, follow us on Twitter @IOA_Energy or visit: www.iamericas.org/energy