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Environment and Energy Landscape in Latin America and the Caribbean: An Analysis of Trends 2020-2030

Increased Access and Use of Modern Energy Sources

December 2020

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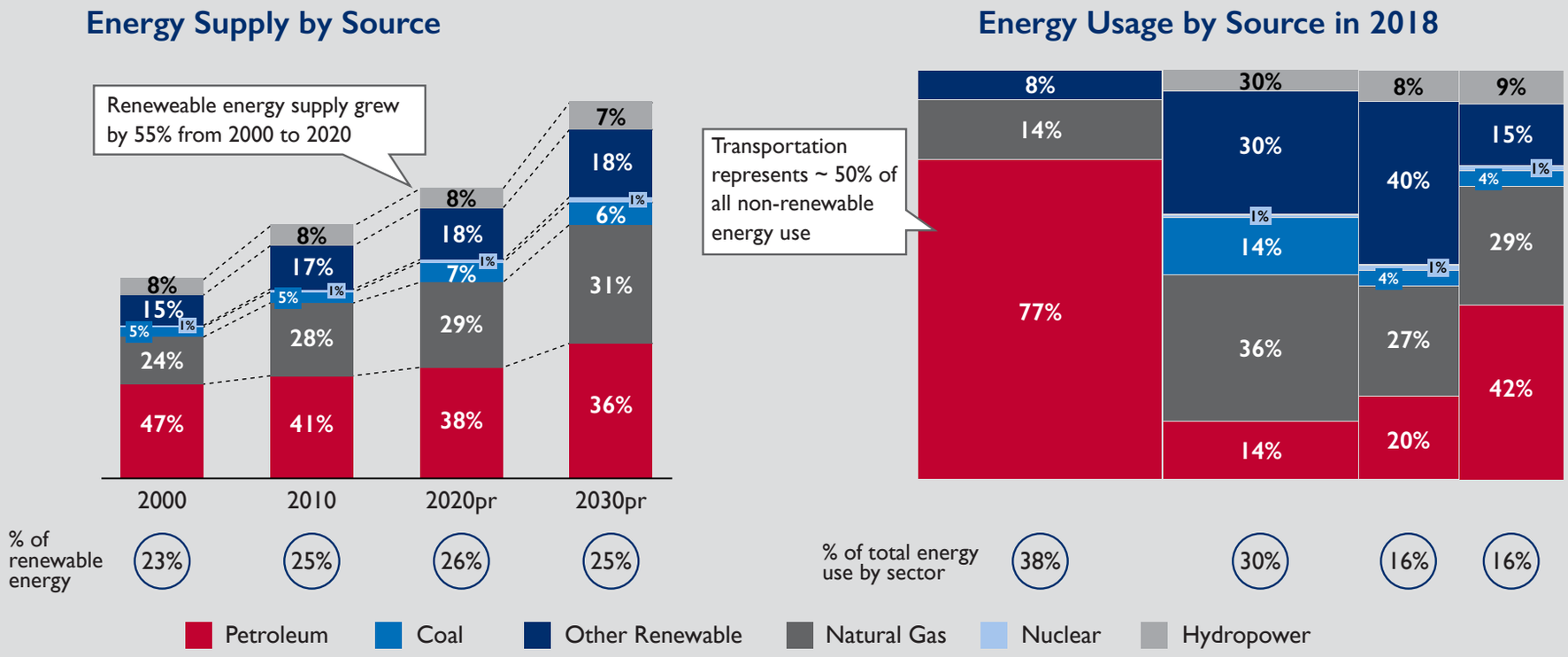
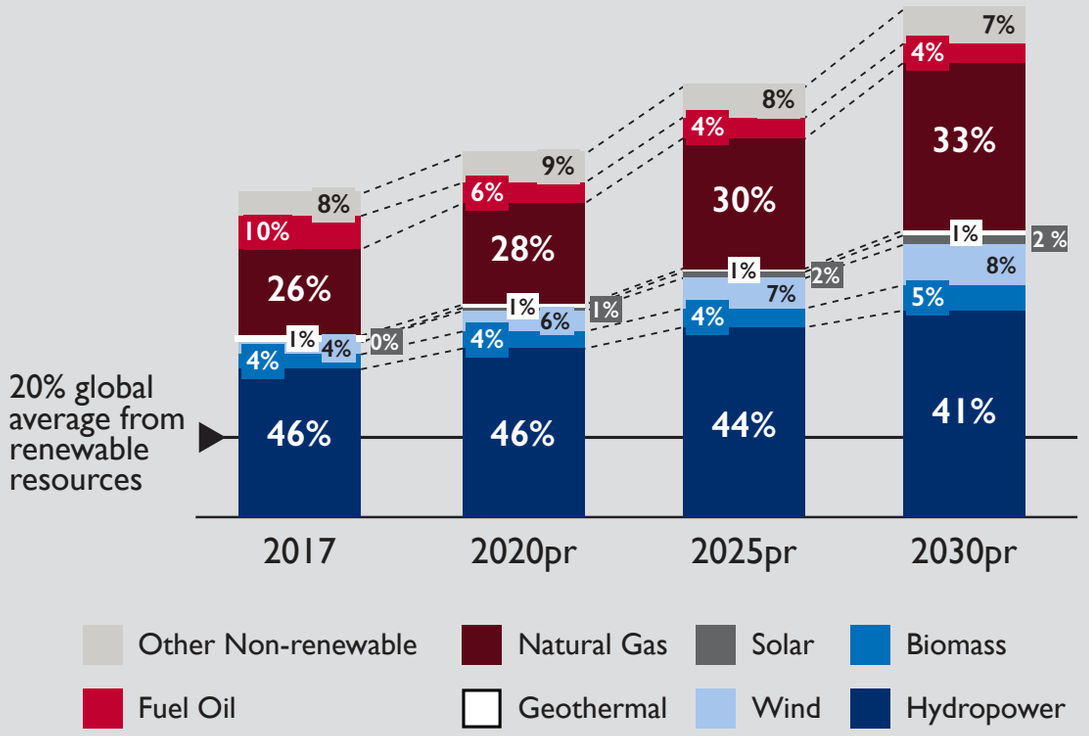
Context | LAC continues to rely heavily on non-renewables, although renewables have grown and represent an important share of total energy supply



Note: Other renewables include: biogas, solar, wind, plant waste, cane products, and firewood.
Sources: 1. OLADE SieLAC; 2. OLADE, "LAC Energy Outlook 2019"; 3. IRENA, "Renewable energy market analysis," 2016; 4. IRENA, "Renewable Energy in Latin America 2015: An Overview of Policies," 2015.

Context | Over 50% of the electricity generated in LAC is from renewable sources, primarily hydropower, which has underlying negative effects

Current and Projected Electricity Generation Matrix in LAC



- Paraguay (100%), Colombia (83%), Costa Rica (74%), Ecuador (71%), and Brazil (65%) have the highest dependence on hydropower for electricity generation
- Brazil alone represents 27% of total renewable generation in LAC, mainly due to hydropower. In 2020, in the Amazon River Basin, 414 dams are being planned, built, or in operation
- Volatile rain patterns due to climate change result in a high seasonal variation of electricity generation potential

Big hydropower dams are associated with negative social and environmental effects:

- In South America, 5.7 million people are affected downstream of dams due to changes in water flow
- Protests against the development of hydroelectric power in Latin America increased in recent years. For example, in 2017, the Munduruku people protested in front of the Brazilian Ministry of Mines and Energy, asking for the suspension of the construction of the Belo Monte hydroelectric plant

Note: USAID considers small hydropower dams to be under 10 MW.

Sources: 1. OLADE, "Matriz de Electricidad: América Latina y el Caribe"; 2. OLADE, "Panorama Energético de América Latina y el Caribe," 2019; 3. Reuters, "Latin America pledges 70% renewable energy, surpassing EU: Colombia minister," 2019; 4. IDB, "Energy Needs in Latin America and the Caribbean to 2040," 2016; 5. Grassroots, "Latin America Unites Against Hydro Dams, Environmental Destruction," 2017; 6. Belt, "How will Latin America deal with its hydropower problem," 2020; 7. The Guardian, "Why is Latin America so obsessed with mega dams?" 2017.

Challenges | Although more than 90% of LAC has access to electricity, energy poverty still undermines livelihoods in some areas

"Energy poverty is the absence of sufficient choice in accessing adequate, affordable, reliable, high-quality, safe, and environmentally benign energy services to support economic and human development"

Main Causes of Energy Poverty

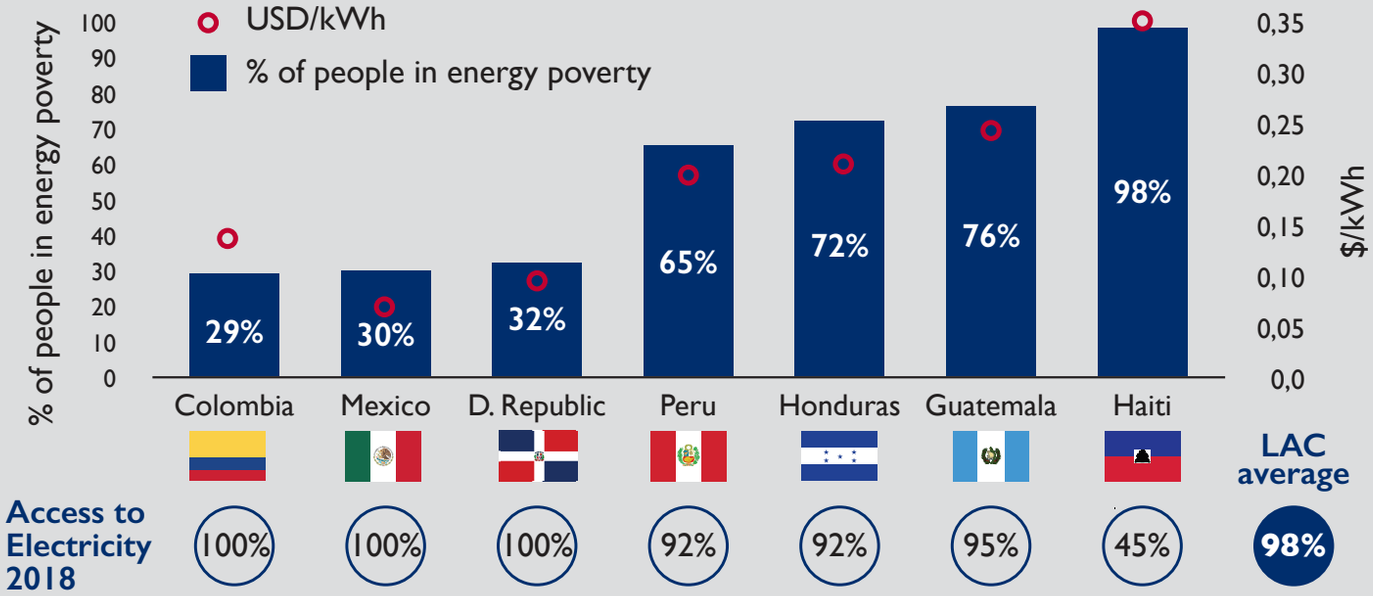
- Poor quality of energy infrastructure
- Poor housing quality
- High energy prices relative to income levels

Social Costs of Energy Poverty

- Constrained livelihood/income generation opportunities
- Fewer hours for education/learning
- Negative health effects due to exposure to harmful indoor air pollution
- Lack of access to basic services that rely on electricity, such as internet connectivity

Energy Poverty and Electricity Price in LAC 2020

(Sample countries, not exhaustive)



Sources: 1. World Bank, "Access to electricity (%population)," 2018; 2. Santillán, et. al, "Analysis of Energy Poverty in 7 Latin American Countries Using Multidimensional Energy Poverty Index," 2020; 3. OLADE, "Pobreza energetica en America Latina y el Caribe –Una propuesta de indicadores que midan el aceso a energia con enfoque de desigualdad social y de genero," 2019; 4. Electricity prices from Globalpetrolprices.com; 5. The clean energy review, "Electricity prices LatAm," 2016; 6. Hernandez, et. al., "Índice De Pobreza Energética Multidimensional Por Regiones Para Colombia, IPEM_RC," 2013.

Opportunities | Distributed generation, modern energy sources, and energy efficiency can drive a more sustainable energy landscape in LAC (1 of 3)

Distributed Generation

- Distributed generation refers to a variety of small-scale (on and off grid) technologies that generate electricity at or near where it will be used, such as solar panels, small hydro, and combined heat and power
- Distributed generation has gained traction, especially solar photovoltaic systems
- Distributed generation is expected to grow as several countries are adopting new regulations and mechanism, such as auctions, to expand it further (e.g., Brazil, Colombia, Ecuador, Costa Rica, Peru)
- Brazil, with 1.2 GW in 2019, is expected to grow 10 times by 2027

Sources: 1. United States Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts," 2018; 2. EESI, "Energy Efficiency," Accessed September 2020; 3. IDB, "Programas de normalización y etiquetado de eficiencia energética," 2015; 4. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 5. BNamericas, "The state of distributed generation in LatAm ahead of 2020," 2019.

Opportunities | Distributed generation, modern energy sources, and energy efficiency can drive a more sustainable energy landscape in LAC (2 of 3)

Use of Modern Energy Sources

- LAC is experiencing a transition to modern energy sources, including renewable fuels for electricity and transportation, and modern fuels for cooking and heating
- In recent years, the use of solid fuels for cooking has decreased in LAC as many households transitioned to liquefied petroleum gas, natural gas, and electricity for cooking, improving health conditions due to reduced air pollution in the home
- Electric-mobility has grown in recent years with great potential to reduce pollution. Also, e-mobility is expected to keep growing due to commitments to have zero emissions public transportation systems and consumer preference shifts

Sources: 1. United States Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts," 2018; 2. EESI, "Energy Efficiency," Accessed September 2020; 3. IDB, "Programas de normalización y etiquetado de eficiencia energética," 2015; 4. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 5. BNamericas, "The state of distributed generation in LatAm ahead of 2020," 2019.

Opportunities | Distributed generation, modern energy sources, and energy efficiency can drive a more sustainable energy landscape in LAC (3 of 3)

Energy Efficiency

- Investment in energy efficiency is emerging throughout the energy value chain in LAC e.g., industrial and construction sectors are incorporating energy efficient practices into their operations as cost-saving strategies
- Energy efficiency is expected to keep growing across sectors. It is imperative for governments to meet the SDG commitment of doubling the global rate of improvement in energy efficiency by 2030 and to meet the needs of the population in the coming years

Sources: 1. United States Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts," 2018; 2. EESI, "Energy Efficiency," Accessed September 2020; 3. IDB, "Programas de normalización y etiquetado de eficiencia energética," 2015; 4. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 5. BNamericas, "The state of distributed generation in LatAm ahead of 2020," 2019.


DISTRIBUTED GENERATION

Distributed Generation | Solar photovoltaic technology is the most common small-scale solution for decentralized electricity generation in LAC

Most Common Types of Small-scale Technologies Used in Distributed Generation

Solar:

Solar power can be generated and consumed off-grid or on-grid, where it is first consumed on-site, and the surplus can be exported to the grid

Biogas:

Uses organic waste to create fuel. This waste can come from both rural (farming, livestock raising) or urban (municipal solid waste) activities

Wind:

Decentralized energy production using wind through small-scale turbines can be implemented to increase urban production of energy and to expand coverage in underserved rural areas

Hydropower:

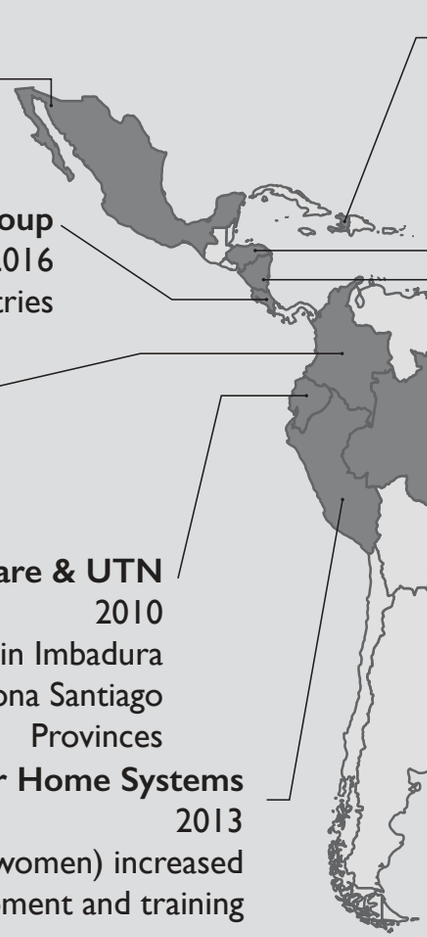
These systems can be installed in small streams or in the existing water supply network. With a capacity below 5 MW, they have negligible environmental effects on wildlife or ecosystems

Around 90% of decentralized energy generation in the region uses solar photovoltaic power, with biogas systems a distant second

Sources: 1. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 2. MIT Technology Review, "Producción descentralizada de energía para un mundo más democrático y verde," 2018; 3. RevistaDigital, "Beneficios de la generación distribuida mediante autoconsumo eléctrico," 2013.

Distributed Generation | In recent years, distributed energy projects have been implemented across the region, but they are still in nascent stages of growth

Sample of Distributed Generation Projects in LAC (Non-exhaustive)



Puerto Peñasco Community Wind Farm
2018
33% reduction in electric bills

Santa Fe Women's Group
2016
16 biodigesters in 5 countries

Tecnoglass-Panasonic
2016
Saving of 6–8% in industrial energy costs plus tax benefits

Care & UTN
2010
22 biodigesters in Imbadura and Morona Santiago Provinces

RE2 Solar Home Systems
2013
4,376 individuals (36% women) increased productivity due to new equipment and training

SunnyMoney
2015
Distribution of solar lamps through teachers as respected members of the community

Plan Grande Community Hydro
2015
Access for the whole community at monthly rates of $5–10 per household

Tecnosol
2016
Micro-payments of $15 a month over ~5 years

Electrobras Amazonas
2017
Community generation with pre-paid service to expand access: 30 kWh at $1.5

Solar Wind Biogas Hydropower

Sources: 1. IDB, "Sustainable energy distribution in Latin America: Study on inclusive distribution networks," 2017; 2. Renewables Now, "Colombia's Tecnogalss to invest $15 million to go solar," 2016; 3. World Bank, "Promoting rural electrification in Peru," 2019.

Distributed Generation | Expansion of distributed generation can increase energy efficiency and quality, and generate economic and social benefits (1 of 3)

Potential Benefits

Efficiency and Quality

Improved efficiency

- Reduction in transmission losses, which frequently reach levels of ~10% of total generation

Improved access and quality of energy

- Distributed generation provides security of supply for consumers affected by frequent outages
- Possible solution to expand access and reduce energy poverty in underserved areas

Sources: 1. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 2. MIT Technology Review, "Producción descentralizada de energía para un mundo más democrático y verde," 2018; 3. RevistaDigital, "Beneficios de la generación distribuida mediante autoconsumo eléctrico," 2013; 4. World Development, "Rural Electrification and Employment in Poor Countries: Evidence from Nicaragua," 2012; 5. American Economic Journal: Applied Economics, "Development Effects of Electrification: Evidence from the Topographic Placement of Hydropower Plants in Brazil," 2012; 6. IDB, "Meeting challenges, measuring progress: the benefits of sustainable energy access in Latin America and the Caribbean," 2018.

Distributed Generation | Expansion of distributed generation can increase energy efficiency and quality, and generate economic and social benefits (2 of 3)

Potential Benefits

Economy

Reduced electricity price for end user

- While initial installation costs may be high, these systems can create lower and more stable pricing: 10–70% reduction in bills

New source of income

- Self-generation home systems (e.g., rooftop solar) can sometimes produce surplus energy to sell into national grids, generating income for households
- Access to electricity in rural and peri-urban settings can lead to new productive uses and income generation for households (e.g., agri-processing)

Sources: 1. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 2. MIT Technology Review, "Producción descentralizada de energía para un mundo más democrático y verde," 2018; 3. RevistaDigital, "Beneficios de la generación distribuida mediante autoconsumo eléctrico," 2013; 4. World Development, "Rural Electrification and Employment in Poor Countries: Evidence from Nicaragua," 2012; 5. American Economic Journal: Applied Economics, "Development Effects of Electrification: Evidence from the Topographic Placement of Hydropower Plants in Brazil," 2012; 6. IDB, "Meeting challenges, measuring progress: the benefits of sustainable energy access in Latin America and the Caribbean," 2018.

Distributed Generation | Expansion of distributed generation can increase energy efficiency and quality, and generate economic and social benefits (3 of 3)

Potential Benefits

Social

Improved social outcomes such as education attainment and increased employment

- In Nicaragua, electricity access using community-managed small-scale plants has led to an increase in educational attainment of up to 0.74 grades among children in Jinotega County
- In Brazil, an increase in electricity access through distributed generation was associated with a local reduction of 22% in illiteracy in the Pantanal region
- In Central America, off-grid electrification resulted in a 23% rise in women's employment across treated communities such as the Honduras municipalities of Wampusirpi and Ahuás

Sources: 1. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 2. MIT Technology Review, "Producción descentralizada de energía para un mundo más democrático y verde," 2018; 3. RevistaDigital, "Beneficios de la generación distribuida mediante autoconsumo eléctrico," 2013; 4. World Development, "Rural Electrification and Employment in Poor Countries: Evidence from Nicaragua," 2012; 5. American Economic Journal: Applied Economics, "Development Effects of Electrification: Evidence from the Topographic Placement of Hydropower Plants in Brazil," 2012; 6. IDB, "Meeting challenges, measuring progress: the benefits of sustainable energy access in Latin America and the Caribbean," 2018.

Distributed generation | Distributed generation still faces challenges across regulation, access to financing, improved infrastructure, and capacity building (1 of 4)

Regulation

- **Weak regulatory frameworks to promote competition** and allow for new players in the energy generation space
- **Low fiscal incentives and subsidies** to promote adoption of technologies with high initial investment requirements
- **Weak or nonexistent net-metering policies** (offset consumption by exporting energy to the grid) tailored to different types of consumers (residential, commercial, industrial)
- **Lack of quality monitoring of electricity services** to identify low-quality services and promote distributed generation projects in those areas to complement the service

Sources: 1. United States Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts," 2018; 2. EESI, "Energy Efficiency," Accessed September 2020; 3. IDB, "Programas de normalización y etiquetado de eficiencia energética," 2015; 4. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 5. BNamericas, "The state of distributed generation in LatAm ahead of 2020," 2019.

Distributed generation | Distributed generation still faces challenges across regulation, access to financing, improved infrastructure, and capacity building (2 of 4)

Finance

- Lack of robust **partnerships and capacity-building** between financial institutions and the initiatives in order to promote greater understanding of the existing opportunities
- Low/limited access to new forms of funding such as **crowd funding, social impact bonds, and market-based mechanism** to further explore initiatives that promote the inclusive distribution of energy

Sources: 1. United States Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts," 2018; 2. EESI, "Energy Efficiency," Accessed September 2020; 3. IDB, "Programas de normalización y etiquetado de eficiencia energética," 2015; 4. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 5. BNamericas, "The state of distributed generation in LatAm ahead of 2020," 2019.

Distributed generation | Distributed generation still faces challenges across regulation, access to financing, improved infrastructure, and capacity building (3 of 4)

Infrastructure

- **Lack of widespread local technological standards** to guarantee the quality of the energy products as plants and batteries, and to facilitate technological selection
- **Low adoption of information and communications technology systems for monitoring and payment management** to reduce operational costs and create efficiencies in the distribution network

Sources: 1. United States Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts," 2018; 2. EESI, "Energy Efficiency," Accessed September 2020; 3. IDB, "Programas de normalización y etiquetado de eficiencia energética," 2015; 4. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 5. BNamericas, "The state of distributed generation in LatAm ahead of 2020," 2019.

Distributed generation | Distributed generation still faces challenges across regulation, access to financing, improved infrastructure, and capacity building (4 of 4)

Capacity

- **Low level of long-term engagement between communities/operators and distributors,** including lack of robust operations and maintenance plans, is a major sustainability issue
- **Weak manuals, training materials, and work force development** among initiatives, government, and final users, particularly on third generation equipment such as LEDs, lithium-based batteries, etc.
- **Weak understanding within local/national governments** on the opportunity of distributed generation and its potential benefits

Sources: 1. United States Environmental Protection Agency, "Distributed Generation of Electricity and its Environmental Impacts," 2018; 2. EESI, "Energy Efficiency," Accessed September 2020; 3. IDB, "Programas de normalización y etiquetado de eficiencia energética," 2015; 4. ABM, "Mercado de energía de baja escala: generación distribuida," 2017; 5. BNamericas, "The state of distributed generation in LatAm ahead of 2020," 2019.

CASE STUDY | Small-scale Hydropower in Guatemala

"Local and national governments partnered with OLADE for the development of this power plant. But most importantly, for the capacity-building of this community and their brand-new community enterprise"

Challenge

- The community of Batzchocolá, with more than 140 families, had limited access to energy and infrastructure. The closest power grid connection was 28km away
- Main barriers to electricity access were the limitation of financial resources for setting up the infrastructure and affordability for local villagers, who were mostly in poverty

Approach to Address the Challenge

- Modelling indicated that the optimal solution was to install a 90 kW sustainable hydropower plant using local water resources
- The multi-stakeholder model involving the government, international cooperation, private initiatives, NGOs, and organized communities enabled technical and financial management of the project
- The sustainability project is based on creating a community enterprise (ASHDINQUI), which includes all community members
- Project management, operation, and maintenance were entrusted to ASHDINQUI after conducting training sessions, information and awareness workshops, and community assemblies, as well as ensuring prior informed consent and a gender equity approach

Outcomes

- Modelling indicated that the optimal solution was to install a 90 kW sustainable hydropower plant using local water resources

Source: IDB & Alliance for Rural Electrification, "Access to energy services through renewable sources in Latin America and the Caribbean," 2017.

CASE STUDY | Photovoltaic Panels, Batteries, and Community Engagement in Punta Soldado, CO

Photo: Isabella Juskova on unsplash

Challenge

- The community of Punta Soldado was dependent on a gasoline-based electric plant and the volatile income from fishing, resulting in discontinuous access to electricity
- For any new project to thrive, long-term maintenance and sustainability depend on continued engagement from the technical partners and solid capacity-building among the community
- Business models must set adequate administrative and economic incentives for technical partners to engage in the long term

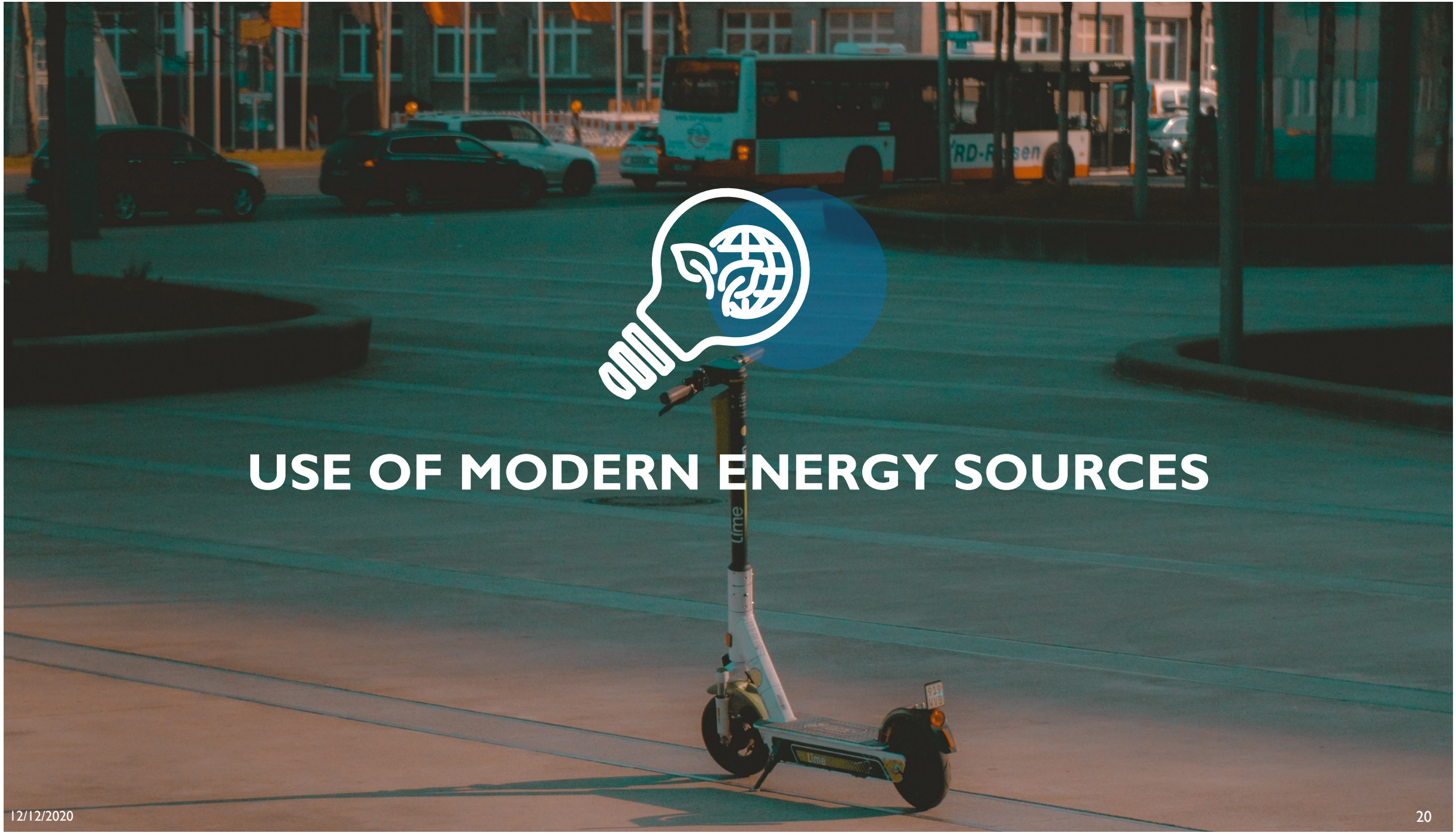
Approach to Address the Challenge

- Epsa-Celsia partnered with USAID to install 288 photovoltaic panels, 96 batteries, and a back-up diesel plant for the infrequent days of low solar radiation
- The pay-as-you-go model has allowed communities to afford electricity and test willingness to pay
- Operational procedures and maintenance are executed by trained community members

Outcomes

- The whole system has capacity of 74 kW, equivalent to a daily supply of 8 hours of electricity to 144 households

Source: Cadernos de Saúde Pública, "Quantifying the impact of air pollution on the urban population of Brazil," 2017.



USE OF MODERN ENERGY SOURCES

Modern Energy Sources | Use of modern energy is expanding in the region across sectors, with cleaner mobility showing significant momentum (1 of 2)

Cleaner Mobility

Transition to cleaner mobility options is on the rise in the region

- Multiple countries in the region are testing incentive systems (such as tariff exemptions, exemptions from VAT, or other taxes)
- Several local and national governments have made commitments to transition to e-buses/e-taxis
- Increased demand for electric vehicles (car and commercial fleet)
- Increase in electric bicycle/scooter ventures in several cities in the region e.g., Mexico City, Bogota, Sao Paulo

Given its high contribution to emissions (36% of total greenhouse gases come from the transportation sector), expected growth in 2020-2030, and pan-regional scope, our analysis will focus on increasing the adoption of cleaner mobility

Source: 1. Labmob, "E-bus radar," Accessed August 18, 2020; 2. IDB, "Ciclo-inclusion en América Latina y el Caribe," 2016; 3. Bloomberg New Energy Finance, "Electric Vehicle Outlook," 2019; 4. Dalberg analysis with official data from each city; 5. ReportLinker, "Analysis of the Latin American electric vehicle market, forecast to 2025," 2019; 6. IEA, "Energy Access Outlook," 2017; 7. Global Burden of Disease Collaborative Network. "Global Burden of Disease Study," 2017; 8. ESMAP, "What have we learned about household biomass cooking in Central America?," 2015; 9. UN Environment, "Chile takes action on air pollution," 2017.

Modern Energy Sources | Use of modern energy is expanding in the region across sectors, with cleaner mobility showing significant momentum (2 of 2)

Cleaner Cookstoves

Efforts to reduce use of biomass have attained significant progress in LAC

- The percent of the population using solid fuels has declined from 19% in 2000 to around 12% in 2015
- During the last 15 years, death rates from indoor air pollution, mainly attributed to cooking emissions, have consistently declined, reaching 9 per 100,000 people in 2017

Cleaner Heating

Provision of access to cleaner technologies is decreasing pollution from this activity

- In countries with winters like Chile, firewood for heating produces as much as 94% of fine particulate matter (PM2.5) emissions
- Distribution of cleaner heating stoves and subsidies for cleaner fuels have reduced severe air pollution episodes by 45% in the last 4 years

Source: 1. Labmob, "E-bus radar," Accessed August 18, 2020; 2. IDB, "Ciclo-inclusion en América Latina y el Caribe," 2016; 3. Bloomberg New Energy Finance, "Electric Vehicle Outlook," 2019; 4. Dalberg analysis with official data from each city; 5. ReportLinker, "Analysis of the Latin American electric vehicle market, forecast to 2025," 2019; 6. IEA, "Energy Access Outlook," 2017; 7, Global Burden of Disease Collaborative Network. "Global Burden of Disease Study," 2017; 8. ESMAP, "What have we learned about household biomass cooking in Central America?," 2015; 9. UN Environment, "Chile takes action on air pollution," 2017.

Modern Energy Sources | Electric vehicles are gaining momentum, especially as major cities in LAC are transitioning their public transport to e-buses

Electric Vehicles in LAC

Private and light commercial vehicles

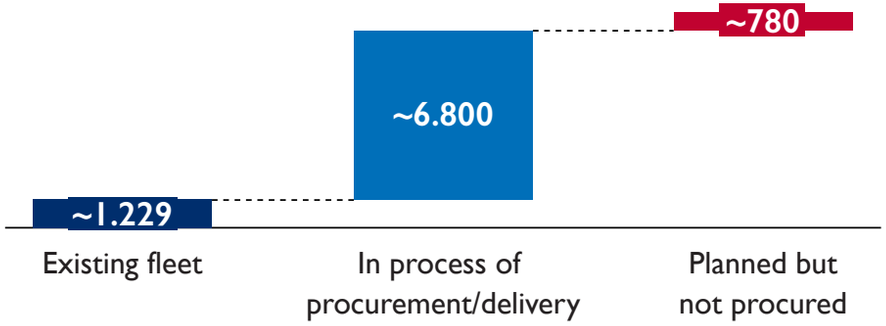
- Around 27,000 hybrid and electric vehicles were sold in 2018 compared to almost zero in 2010
- Sales of hybrid and electric cars and commercial vehicles are expected to increase sevenfold in coming years, reaching 158,000 units in 2025
- Companies and local governments have taken the initiative to convert or upgrade their fleets from commercial to electric vehicles (mainly electricity transmission and distribution service companies in the region and private sector companies like Bimbo)

Public transportation vehicles

- Electric buses have increased from practically zero to ~1,200 in the last 5 years - 1.27% of region's total fleet of 96,555 units
- Key cities have committed to create zero-emission public transportation fleets in the next 10-15 years

Public Transportation E-buses in LAC

# of electric units, 2015-present



Selected Cities	Existing fleet	In process of procurement/delivery	100% of e-buses procured by:
Bogota	483	From 631 up to 2,000	2035
Santiago	410	From 265 up to 4,300	2026
Mexico city	120	From 130 up to 430	2025
Sao Paulo	16	Up to 100	2028

Sources: 1. Dalberg analysis with cities' official data; 2. ICCT, "Financing the Transition to Soot-Free Urban Bus Fleets in 20 Megacities," 2017; 3. ZEBRA, "Accelerating a market transition in Latin America: New business models for electric bus deployment," 2020; 4. WHO, "How air pollution is destroying our health," 2019.

Modern Energy Sources | Increased cleaner mobility can reduce emissions, lower costs of ownership, and improve health conditions for the region (1 of 3)

Potential Benefits

Environment

Reduced emissions

- Transition to electric buses can eliminate 25% of current black carbon emissions caused by diesel buses in cities, depending on the source of the electricity employed

Sources: 1. Dalberg analysis with cities' official data; 2. ICCT, "Financing the Transition to Soot-Free Urban Bus Fleets in 20 Megacities," 2017; 3. ZEBRA, "Accelerating a market transition in Latin America: New business models for electric bus deployment," 2020; 4. WHO, "How air pollution is destroying our health," 2019; 5. Advance Energy, "Beneficial buses: electric buses bring benefits to businesses, communities and utilities," 2020.

Modern Energy Sources | Increased cleaner mobility can reduce emissions, lower costs of ownership, and improve health conditions for the region (2 of 3)

Potential Benefits

Economy

Decreased cost of ownership and maintenance

- Total cost of ownership of an e-bus can be equal or less than that of a diesel bus, given ongoing savings in fuel and maintenance

New business models

- Electric mobility is a sector where several ventures across the region have emerged; companies are testing scooters, e-bikes, and renting electric vehicles, which are creating new employment opportunities in LAC

Sources: 1. Dalberg analysis with cities' official data; 2. ICCT, "Financing the Transition to Soot-Free Urban Bus Fleets in 20 Megacities," 2017; 3. ZEBRA, "Accelerating a market transition in Latin America: New business models for electric bus deployment," 2020; 4. WHO, "How air pollution is destroying our health," 2019; 5. Advance Energy, "Beneficial buses: electric buses bring benefits to businesses, communities and utilities," 2020.

Modern Energy Sources | Increased cleaner mobility can reduce emissions, lower costs of ownership, and improve health conditions for the region (3 of 3)

Potential Benefits

Health

Improved health outcomes due to reduced air pollution and noise

- E-buses or e-mobility can help address the regional air pollution crisis: eight out of ten people in LAC breathe air considered unhealthy by the World Health Organization
- Their lack of diesel engines reduces noise pollution, a relevant issue in Latin American urban centers

Sources: 1. Dalberg analysis with cities' official data; 2. ICCT, "Financing the Transition to Soot-Free Urban Bus Fleets in 20 Megacities," 2017; 3. ZEBRA, "Accelerating a market transition in Latin America: New business models for electric bus deployment," 2020; 4. WHO, "How air pollution is destroying our health," 2019; 5. Advance Energy, "Beneficial buses: electric buses bring benefits to businesses, communities and utilities," 2020.

Modern Energy Sources | Electric mobility requires stronger regulation, access to financing, infrastructure, and technical capacity to further increase (1 of 3)

Regulation

- **Low incentives for operators to transition to e-buses** by providing guarantees and proving its business benefits
- **Weak planning and development of mobility plans around modern mobility** sources including technical aspects such as selection of routes, contracts, and hiring of services and regulation and supervision of the system (e.g., monitoring quality, applying fines)
- Low adoption of agreements and commitments from governments to **procure zero-emission buses** (only major cities in the region)

Sources: 1. IEA, "Energy Access Outlook,"2017; 2. ICCT, "Financing the Transition to Soot-Free Urban Bus Fleets in 20 Megacities," 2017; 3. ZEBRA, "Accelerating a market transition in Latin America: New business models for electric bus deployment," 2020.

Modern Energy Sources | Electric mobility requires stronger regulation, access to financing, infrastructure, and technical capacity to further increase (2 of 3)

Finance

- **Lack of innovative financing mechanisms** (e.g., leasing e-buses) for traditional operators, which allow for cost sharing (i.e., the operator does not cover all upfront costs) and risk sharing (e.g., traditional asset owners take on less technology and financial risk)
- **Limited/difficult access to attractive financing terms** to enable purchase of e-buses:
  - Lower interest rates
  - Extended payment periods
  - Grace periods
- **Limited access to grants from development finance institutions/donors** to show proof-of-concept to replicate and scale

Sources: 1. IEA, "Energy Access Outlook,"2017; 2. ICCT, "Financing the Transition to Soot-Free Urban Bus Fleets in 20 Megacities," 2017; 3. ZEBRA, "Accelerating a market transition in Latin America: New business models for electric bus deployment," 2020.

Modern Energy Sources | Electric mobility requires stronger regulation, access to financing, infrastructure, and technical capacity to further increase (3 of 3)

Infrastructure

- **Low availability of public infrastructure for e-buses,** such as grid capacity for transmission and charging stations
- **Low engagement from** private energy companies and manufacturers to develop **charging stations**

Capacity

- **Policymakers, utilities, and transport authorities lack the training** to design, create, operate, and regulate brand-new public systems and business plans around electric technology's technicalities
- **Low engagement from suppliers to support the operators** with maintenance, staff training, problem diagnosis, and resolution

Sources: 1. IEA, "Energy Access Outlook,"2017; 2. ICCT, "Financing the Transition to Soot-Free Urban Bus Fleets in 20 Megacities," 2017; 3. ZEBRA, "Accelerating a market transition in Latin America: New business models for electric bus deployment," 2020.

CASE STUDY | Sao Paulo's Public Transportation System's Transition to Electric Buses

"In January 2018, Sao Paulo set pollution reduction targets for all buses. The city is looking for solutions such as electric buses because they reduce noise and pollution. They make the city healthier and more enjoyable"

Challenge:

- Public transit diesel buses generate around 27% of transportation air pollution in the city
- Sao Paulo's air pollution is responsible for ~5% of deaths among the city's elderly and children
- More than 4,000 hospital admissions per year for respiratory conditions are attributable to air pollution

Approach to Adress the Challenge:

- Current project to renovate fleet with 100 e-buses and make 100% of procured buses electric by 2028
- Government included pollution reduction targets and potential penalties in contracts with operators
- National Development Bank financed 80-100% of bus costs and established strict regulation to promote local industry and job creation
- The farebox trust fund, managed by SPTrans, works as a guarantee for private operators' credits

Outcomes:

- Sao Paulo expects to reduce 100% of CO_2 emissions from buses and 95% for particulate matter and nitrous oxide within 20 years
- Electric buses in Sao Paulo have 9% less total life cycle cost than P7 (current regulatory standard for vehicle emissions in Brazil) diesel buses

Sources: 1. Cadernos de Saúde Pública, "Quantifying the impact of air pollution on the urban population of Brazil," 2017; 2. Government of Brazil, "International Evaluation of Public Policies for Electromobility in Urban Fleets," 2018.

CASE STUDY | Commercial Electric Fleets that Use Renewable Energy Sources in Mexico

"Currently Grupo Bimbo is the company with the largest sustainable distribution fleet in Mexico and one of the largest in Latin America"

Challenge:

- The Bimbo group in Mexico seeks to have more sustainable practices as part of its commitment to developing innovative solutions for the benefit of the planet
- Bimbo aims to use 100% renewable energy by 2025

Approach to Adress the Challenge:

- Since 2012, Bimbo has opperated electric trucks within its distribution fleets. It currently has 400 trucks of this type

- From 2020 to 2024, Bimbo plans to add 1,000 electric trucks per year to its fleet (i.e., 4,000 electric trucks in total)
- The electricity for charging the truck fleet comes from a wind power plant
- The total investment that Bimbo will incur is around $127 million

Outcomes:

- Each electric truck saves 3.4 tons of CO_2 per year, each equivalent to approximately 100 trees
- Each vehicle will stop consuming 2,152 liters of diesel annually

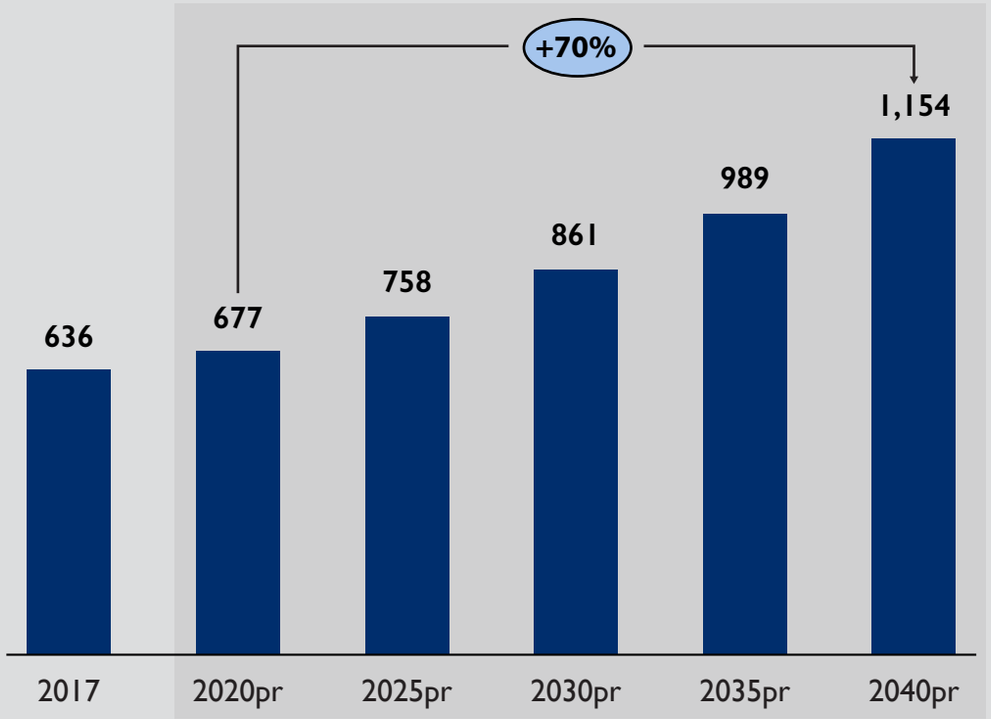
Sources: 1. Bimbo, "Grupo Bimbo announces the incorporation of 4,000 new electric-powered vehicles to its sustainable distribution fleet," 2019; 2. Forbes, "Bimbo añade 100 vehículos eléctricos y 41 híbridos a su flotilla 'verde'," 2020.


ENERGY EFFICIENCY

Energy Efficiency | Due to rapid increases in energy demand, efficiency across the value chain will be required to meet the needs of the population

Projected Total LAC Energy Use to 2040 (Mtoe)

Moving to more efficient technologies is necessary to meet the projected energy needs of the region



Opportunities Across the Value Chain

Generation

Improvement of technologies that require less economic and environmental expenses (e.g., renewable energies)

Distribution

Improvement in technologies and process designs for reducing losses (e.g., materials to reduce technical losses)

Industrial and Commercial Sectors

Development and implementation of technologies that require less energy expenditure (e.g., development and use of energy-saving elevators)

Consumer Use

Changing energy consumption habits (e.g., use of energy efficient appliances, or energy saving light bulbs)

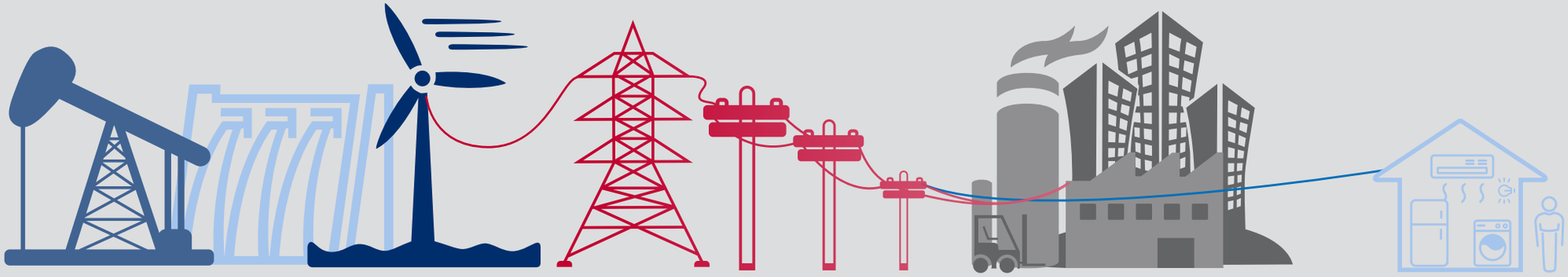
Target 7.3 of the Sustainable Development Goals indicates that the global rate of improvement in energy efficiency should increase by 2x relative to the global average improvement rate of 1.3% during the period 1990 to 2010

Note: Mtoe stands for millions of tonnes of oil equivalent.

Sources: 1. IDB, "Energy Needs in Latin America and the Caribbean to 2040," 2016; 2. OLADE, "Panorama Energético de América Latina y el Caribe," 2019; 3. IEA, "SDG7: Data and Projections," 2019.

Energy Efficiency | Digitalization is a nascent tool in the region that represents greater efficiency throughout the entire energy value chain

Digitalization Driven Opportunities for Efficiency



Generation

Process automation and data logging to improve energy supply

Examples:

- Big data
- Cloud analytics
- Artificial intelligence
- Internet of things

Distribution

Monitoring and control of energy losses, line expansion and maintenance

Examples:

- Big data
- Artificial intelligence
- Drones
- Smart meters

Industrial & Commercial Sectors

Efficient process management for decision-making

Examples:

- Smart meters
- Sensors
- Cloud computing
- Internet of things
- Mobile apps

Consumer Use

Appliances with digital and remote energy control

Examples:

- Mobile apps
- Internet of things
- Smart meters

Sources: 1. IDB, "La revolución digital de la energía hidroeléctrica en los países latinoamericanos," 2020; 2. The Magazine of Green Economy, "The Future of energy global summit, "2018; 3. Bloomberg NEF, "Digitalization of Energy Systems, "2017.

Energy Efficiency | In the generation and distribution of energy, digitalization has gained traction in monitoring and improving efficiency

Areas of Opportunity in Generation and Distribution

Generation

Big Data and Artificial Intelligence

- Energy resources can be optimized by aligning supply and demand
- Administrative automation and data-based decision making can be achieved in power plants
- Data-driven asset management including preventative maintenance and power outage predictions

Distribution

Internet of Things

- A smart network and pipelines enable automated controls to improve network resilience, security, and efficiency
- Field operators with mobile access to maps, data, work management tools, and real-time experience

Examples of Energy Efficiency Implementation in LAC

Brazil

Big Data and Artificial Intelligence

"CTG Brazil has modernized its hydroelectric plants by updating the Supervisory Control And Data Acquisition system to achieve interconnection between the operation of the site and the operation of the company through the management of data in the cloud. Also, the operation of the power plant will be automated with the main objective of increasing efficiency, safety, and reliability" Some new energy efficiency systems have achieved up to 20% better performance

Peru

Big Data and Artificial Intelligence

"The local electricity system operator, COES, remotely manages the dispatch of the power plants to maintain the system frequency. COES achieved this by connecting all the generators via a fiber optic cable to the centralized dispatch center located in Lima. The implementation of digital electrical substations can reduce up to 30% of total construction costs and 70% of operation and maintenance costs"

Sources: 1. IDB, "La revolución digital de la energía hidroeléctrica en los países latinoamericanos," 2020; 2. Canal Energia, "CTG Brasil troca transformadores em modernização de UHE Ilha Solteira," 2020.

Energy Efficiency | Industrial and commercial sectors can save energy through technology and innovation that improves energy efficiency

Sectors with Potential to Implement Energy Efficiency Measures in LAC

Construction

Big Data and Artificial Intelligence

- Low-energy materials used for constructing buildings and houses
- Energy-efficient appliances to conserve building operating energy
- Digitalization for efficient use of energy in buildings

Industrial

Internet of Things

- Digitalization enables better control of processes, resulting in greater energy efficiency
- Incorporation of energy efficient technologies into processes

Examples in LAC of Energy Efficiency Implementation

Colombia

Construction company Pactia and Azimut use innovative tools to make energy-efficient buildings. Some of their practices include automatic management of energy billing and installation of energy consumption meters with communication and analysis in real-time. The energy efficiency strategies allowed savings of 26% in the energy consumption of 30 assets of the company between 2018 and 2019, with an environmental impact equivalent to not emitting more than 530 tons of CO_2 per year

Mexico

The Procter & Gamble plant in Guanajuato has implemented energy efficiency in its processes and equipment such as changes in lighting, installation of motion sensors, use of pumps, replacement of chillers, use of variable frequency drives to reduce water pressure, and installation of compressors, which save energy. The plant saved 10 million kW in 3 years, which is equivalent to approximately a 20% reduction in its energy footprint

Sources: 1. OLADE, "Barómetro de la Energía de América Latina y el Caribe," 2019; 2. Arquima, "Qué es la Eficiencia Energética en la construcción de edificios y viviendas," 2018; 3. educarchile, "¿Qué es la eficiencia energética?," Accessed September 2020; 4. Energy News, "La digitalización mejora la eficiencia energética: un 82% en los edificios y un 79% en las infraestructuras," 2019; 5. "Pactia y Azimut Energía ganan premio Andesco a la eficiencia energética," 2020; 6. GTO, "Empresas e instituciones reciben Premio a la Sustentabilidad Energética Guanajuato 2019," 2019; 7. Alto nivel, "Premian eficiencia energética de P&G," 2010.

Energy Efficiency | End user energy efficient products have become widely available and consumer demand for this type of products is growing

Labeling Standards for Energy Efficiency in Some Products in LAC

	Home appliances	Air Conditioning	Illumination	Heaters
Mexico	✓	✓	✓	✓
Nicaragua	✓	✓		
Costa Rica	✓	✓	✓	
Panama	✓			
Colombia	✓		✓	
Cuba	✓	✓	✓	
Ecuador	✓	✓	✓	
Chile	✓		✓	
Argentina	✓	✓	✓	✓
Brazil	✓			
Uruguay	✓	✓	✓	

Efficient Energy Consumption Patterns in LAC

According to an IDB survey on energy efficiency:

- In LAC, on average one out of two households is willing to spend money to buy appliances that reduce electricity bill
- 23% of households in LAC would be willing to buy more energy-efficient appliances, but do not have the money to buy them
- 29% of LAC households use energy-saving light bulbs

The full implementation of energy efficiency standards for refrigerators, air conditioners, and fans in LAC could generate savings of $20 billion annually compared to 2015 consumption (i.e., saving 11% of current energy consumption in the region)

Sources: 1. IDB, "Programas De Normalización Y Etiquetado De Eficiencia Energética," 2015; 2. OLADE, "Eficiencia Energética en América Latina y el Caribe: Avances y oportunidades," 2017; 3. IDB, "Towards Greater Energy Efficiency in Latin America and the Caribbean: Progress and Policies," 2019.

Energy Efficiency | Energy efficiency in various sectors has the potential to benefit the region at an environmental, health, and economic level (1 of 3)

Potential Benefits

Environment

Potential prevention of CO_2 emissions due to the use of energy efficient technologies

- It is estimated that between 2015 and 2030, energy efficiency practices can reduce CO_2 emissions by around 11% in Central America and the Southern Cone, and by 3% in the Caribbean
- In Brazil, efficient air conditioners prevented 11,349 tCO_2 from being emitted per year between 2005 and 2012

Sources: 1. Jannuzzi, "Energy Efficiency and Renewable Energy in Latin America: Policies toward Sustainable Development," 2017; 2. Hernández, "Panorama de la situación energética en América Latina," 2020; 3. García, "Caracterización espacial de la pobreza energética en México. Un análisis a escala subnacional," 2016; 4. IDB, "Energy Efficiency: 3 Ways LAC Cities can reach 2030 Goals," 2014; 5. OLADE, "Eficiencia energética en América Latina y el Caribe: Avance y oportunidades," 2017; 6. International Energy Agency (IEA), "Digitalization & Energy," 2018.

Energy Efficiency | Energy efficiency in various sectors has the potential to benefit the region at an environmental, health, and economic level (2 of 3)

Potential Benefits

Economy

Electricity savings from energy efficient technologies

- In Bolivia, companies and factories adopted energy efficiency measures by investing in efficient technologies in 2012. As a result, the city has reduced energy costs
- Thanks to the use of efficient refrigerators between 2005 and 2012, Argentina, Brazil, Chile, Colombia, Mexico, and Peru saved a total of 1,091 GWh per year
- Digitalization can reduce power system costs – The International Energy Agency estimates 5% lower cost of operation and maintenance, 5% more electricity output per unit of fuel, and 5% lower network losses

Sources: 1. Jannuzzi, "Energy Efficiency and Renewable Energy in Latin America: Policies toward Sustainable Development," 2017; 2. Hernández, "Panorama de la situación energética en América Latina," 2020; 3. García, "Caracterización espacial de la pobreza energética en México. Un análisis a escala subnacional," 2016; 4. IDB, "Energy Efficiency: 3 Ways LAC Cities can reach 2030 Goals," 2014; 5. OLADE, "Eficiencia energética en América Latina y el Caribe: Avance y oportunidades," 2017; 6. International Energy Agency (IEA), "Digitalization & Energy," 2018.

Energy Efficiency | Energy efficiency in various sectors has the potential to benefit the region at an environmental, health, and economic level (3 of 3)

Potential Benefits

Health

Potential improvement in quality of life and health

- In homes with wood-based stoves, the implementation of energy-efficient appliances decreases the probability of respiratory diseases
- Diseases associated with extreme heat increase in homes located in tropical areas. Therefore, efficient air conditioning systems can help reduce climate-related diseases

Sources: 1. Jannuzzi, "Energy Efficiency and Renewable Energy in Latin America: Policies toward Sustainable Development," 2017; 2. Hernández, "Panorama de la situación energética en América Latina," 2020; 3. García, "Caracterización espacial de la pobreza energética en México. Un análisis a escala subnacional," 2016; 4. IDB, "Energy Efficiency: 3 Ways LAC Cities can reach 2030 Goals," 2014; 5. OLADE, "Eficiencia energética en América Latina y el Caribe: Avance y oportunidades," 2017; 6. International Energy Agency (IEA), "Digitalization & Energy," 2018.

Energy Efficiency | Despite the advances in this field, there are still challenges to overcome to further increase energy efficiency (1 of 4)

Regulation

- **Weak or non-existent energy efficiency regulation and sector specific regulation** - 52% of experts in the energy sector in LAC say that the lack of regulation blocks the penetration of energy efficiency
- **Lack of local standards, testing, and certification of more efficient appliances** - Measuring and ensuring the persistence of energy efficiency savings must become commonplace. This is not a one-time system, but one that should keep evolving
- **Weak enforcement of regulation** - Despite the existence of several regulations on efficient energy in the region, according to an OLADE survey, 37% of the sector considers that its implementation/enforcement is bad

Sources: 1. OLADE, "Barómetro de la energía de América Latina y el Caribe," 2019; 2. CAF, "Clean Energy Innovation in Latin America," 2016.

Energy Efficiency | Despite the advances in this field, there are still challenges to overcome to further increase energy efficiency (2 of 4)

Financing

- **Low access to financing** due to high costs of new technologies - the costs associated with acquiring new, more efficient technologies for processes represent a barrier to the growth of efficient energies in the region
- **Low availability of innovative financing mechanisms for energy efficiency** (e.g., pay per kilowatt saved)

Sources: 1. OLADE, "Barómetro de la energía de América Latina y el Caribe," 2019; 2. CAF, "Clean Energy Innovation in Latin America," 2016.

Energy Efficiency | Despite the advances in this field, there are still challenges to overcome to further increase energy efficiency (3 of 4)

Technology

- **Lack of innovation and local development** - 35% of the energy sector considers the lack of local development is an impediment for efficient energy growth in the region
- **Lack of development of local patents** - The region lags the rest of the world in the generation of patents in the energy sector (During 2010: 39 patents in LAC, 1,359 in North America, 1,791 in Europe, and 1,859 in Asia)

Sources: 1. OLADE, "Barómetro de la energía de América Latina y el Caribe," 2019; 2. CAF, "Clean Energy Innovation in Latin America," 2016.

Energy Efficiency | Despite the advances in this field, there are still challenges to overcome to further increase energy efficiency (4 of 4)

Awareness

- **Weak private sector engagement** - There is a need to educate and build the business case for energy efficiency across different sectors to further engage the private sector

Sources: 1. OLADE, "Barómetro de la energía de América Latina y el Caribe," 2019; 2. CAF, "Clean Energy Innovation in Latin America," 2016.

CASE STUDY | Energy Efficiency for Provision of Water in Guyana

"Energy efficiency measures can help not only the water utilities to reduce operational costs and improve operational performance, but energy efficiency measures can also contribute to a better allocation of energy resources in a context of high prices and limited offers"

Challenge:

- Guyana Water Incorporated (GWI), the national water utility, consumes almost 6% of the total electricity generation of the country
- This represents a total cost of approximately $12 million annually for GWI, or close to 60% of its overall operational costs

Approach

- Energy savings opportunities were detected through a detailed auditing process, during which more than 100 boreholes were assessed
- As a result, identified energy savings opportunities involved mainly the replacement of motor-pump assemblies operating at low efficiency as compared to newly-available equipment
- GWI also installed capacitor banks to reduce the electrical power factor and thus increasing financial savings associated with the current electrical tariff structure

Outcomes

- A total investment of $163,000, with an average simple payback of three months, generated an overall average increase in energy efficiency of 29%, which represents savings of $649,360 per year

Source: IDB, "Energy efficiency in water utilities: the case of Guyana," 2016.

CASE STUDY | Hotels in Central America and the Caribbean are implementing energy efficiency practices

"When people, individually, turn off the lights for an hour, it is a sign of solidarity, but it´s limited. However, when it comes to a hotel chain, the impact is as important as it is quantifiable"

Challenge:

- Iberostar sought to decrease costs and implement sustainable environmental practices in its Central America and Caribbean hotels, to comply with the SDGs
- It also wanted to raise awareness on care for the planet

Approach

- Taking advantage of technological advances, Iberostar has been increasing its use of LED lights and televisions
- In one of its hotels, they have elevators that store the kinetic energy generated by their movements to reuse; this saves up to half of energy consumption
- Thanks to digitalization, Iberostar has an intelligent system that monitors and manages energy consumption in its rooms

Outcomes

- Cost savings due to an 85% decrease in energy consumption
- 80% decrease in CO_2 emissions in 10 years

Source: IDB, "Energy efficiency in water utilities: the case of Guyana," 2016.

CALLS TO ACTION

CALLS TO ACTION | A holistic, cross-sectoral approach is needed to expand the use of market-based-mechanisms toward environmental outcomes

Source: Dalberg analysis

The underlying drivers limiting access to and use of modern energy sources are often systemic issues rooted in local economic, social, and cultural realities that are deeply challenging to address

Making progress on these challenges often requires cross-cutting approaches that draw on resources and capabilities from local communities themselves along with support from government, private sector, civil society, academia, and donors

The high-level ideas outlined in this section are often interdependent; they need to be implemented in tandem in order to be effective

They also require a keen understanding of local context to determine whether and how they might apply given the size and diversity of the region

Photo: Bill Oxford on unsplash

Calls to action | In order to increase the adoption of market-based mechanisms, LAC must have the following enabling factors in place (1 of 6)

Public sector

Strengthen regulatory framework and its application/enforcement

- Develop incentives and market-based mechanisms to encourage the transition to modern energy sources e.g., avoid fossil-fuel pre-tax subsidies
- Develop regulation to encourage the integration of distributed generation and decentralized generation into the grid
- Develop energy efficient guidelines by sector/industry for more efficient energy consumption (e.g., guidelines for construction to incorporate best practices in energy efficiency)

Strengthen city and national planning

- Incorporate cleaner mobility plans as part of the local/national government plans (e.g., electric trains, e-buses)
- Develop local and national commitments to transition to a modern energy matrix

Develop financing mechanisms to encourage private sector engagement in energy efficiency

- Provide direct loans, grants, equity, or guarantees to private sector projects
- Develop bonds for distributed generation/clean energy/energy efficiency (e.g., efficient building bonds)

Photo: Bill Oxford on unsplash

Calls to action | In order to increase market-based mechanism adoption, LAC must have the following enabling factors in place (2 of 6)

Civil Society

Participate in decision making for renewable energy projects

- Participate in public consultation processes around energy projects for the community
- Engage in community driven distributed generation projects to increase access, quality, and affordability of electricity

Change Behavior

- Modify energy consumption patterns to be more efficient (e.g., turn off lights, unplug home appliances)
- Modify buying patterns to shift consumer preferences toward home appliances that are more efficient or rely on modern energy sources

Photo: Bill Oxford on unsplash

Calls to action | In order to increase market-based mechanism adoption, LAC must have the following enabling factors in place (3 of 6)

Private sector

Develop business models to enable increased access

- Develop and implement business models for expanding access to modern energy – distributed generation models clearly linked to productivity hubs that will benefit from electricity and be able to pay for the service
- Promote support from utility companies to build awareness around distributed generation benefits and provide technical assistance on how to adapt systems to new renewable business models
- Formulate financial and viable technical plans for modern energy projects (e.g., e-buses project)

Invest in improving energy efficiency

- Increased engagement of private sector companies in adopting energy efficient practices/ technologies
- Develop a clear case on the business benefits of modern energy sources, both for them and the environment (as part of cost reduction and CSR)

Collaborate with government

- Participate in policymaking processes related to renewable energy sectors and energy efficiency
- Increased participation of private sector to develop renewable energy projects

Photo: Bill Oxford on unsplash

Calls to action | In order to increase market-based mechanism adoption, LAC must have the following enabling factors in place (4 of 6)

Academia/Research

Innovate

- Develop of new energy efficiency technologies

Expand offer and curriculum update

- Expand technical capacity/human resources for clean energy labor markets – e.g., increase number of engineering graduates

Community engagement

- Serve as "hubs" in their communities for distributed generation, transition to modern energies, and energy efficient projects
- Advocate for specific modern energy technologies at the local, state, and national levels

Research

- Support building evidence of what works

Photo: Bill Oxford on unsplash

Calls to action | In order to increase market-based mechanism adoption, LAC must have the following enabling factors in place (5 of 6)

USAID
FROM THE AMERICAN PEOPLE

Support governments in expanding technical capacity

- Build local capacity on renewable energy, distributed generation, cleaner mobility, and energy efficiency
- Support governments across the region in developing regulation on distributed generation, energy efficiency plans (with sector specific detail), and plans to transition to cleaner fuels for the transportation sector

Facilitate exchange of knowledge across countries (cross-Mission learnings)

- Cross learning from other Missions – USAID has deep experience in setting up distributed energy projects across the region, and both successful and failed experiences should be broadly disseminated to learn from them

Support private sector engagement for increased access to and use of clean energies

- Increase the engagement of private sector companies when incorporating renewable energies and energy efficiency practices (as a prerequisite for some sectors/geographies to work with USAID)
- Support the development of public private partnerships for energy projects
- Promote training and guidance for utilities to transition to distributed generation models in alliance with ministries and regulators

Photo: Bill Oxford on unsplash

Calls to action | In order to increase market-based mechanism adoption, LAC must have the following enabling factors in place (6 of 6)

USAID
FROM THE AMERICAN PEOPLE

Provide/support access to catalytic capital to transition to modern energies or implement energy efficient practices

- Develop a risk-sharing financing facility for implementing modern energy projects
- Provide direct financing
- Provide support to scale innovation with proven results through access to finance

Support the development of market-based mechanisms for energy projects

- Remove market barriers for private sector participation

Photo: Bill Oxford on unsplash

Photo: Bill Oxford on unsplash