

**SOLARPLAZA**

UPDATED

# FACTS & FIGURES

---

## **SOLAR ENERGY - LAC** **2018**

BRAZIL  
MEXICO  
ARGENTINA  
CHILE  
COLOMBIA  
CENTRAL AMERICA  
CARIBBEAN



**EL FUTURO SOLAR**  
**ARGENTINA**

8 - 9 MAY 2018 / BUENOS AIRES

**UNLOCKING SOLAR**  
**CAPITAL LAC**

28 - 29 JUNE 2018 / MIAMI, USA

## TABLE OF CONTENTS

---

P 3.	<a href="#"><u>CONTACT DETAILS - SOLARPLAZA TEAM</u></a>
P 4.	<a href="#"><u>1. INTRODUCTION TO CONFERENCES AND WHITE PAPER</u></a>
P 6.	<a href="#"><u>2. GENERAL OVERVIEW</u></a>
P 8.	<a href="#"><u>3. COUNTRY PROFILES</u></a>
P 8.	<a href="#"><u>3.A BRAZIL</u></a>
P 11.	<a href="#"><u>3.B MEXICO</u></a>
P 14.	<a href="#"><u>3.C ARGENTINA</u></a>
P 17.	<a href="#"><u>3.D CHILE</u></a>
P 20.	<a href="#"><u>3.E COLOMBIA</u></a>
P 23.	<a href="#"><u>3.F CENTRAL AMERICA</u></a> (Honduras, Guatemala, Nicaragua, Panama, Costa Rica and El Salvador)
P 28.	<a href="#"><u>3.G CARIBBEAN</u></a>
P 31.	<a href="#"><u>4. GENERAL SUMMARY</u></a>
P 33.	<a href="#"><u>SOURCES &amp; LINKS</u></a>

## CONTACT DETAILS SOLARPLAZA TEAM

---



**RIK TEEUWEN**

Project Manager:  
 El Futuro Solar Argentina  
 rik@solarplaza.com  
 +31 10 280 9198

**ADRIAAN VAN LOON**

Project Manager:  
 Unlocking Solar Capital LAC  
 adriaan@solarplaza.com  
 +31 10 280 9198

**MARCO DOROTHAL**

Editor  
 marco@solarplaza.com  
 +31 10 280 9198

Disclaimer: This overview is provided by Solarplaza International BV ("Solarplaza") as a service to its customers on an "as-is, as-available" basis for informational purposes only. Solarplaza assumes no responsibility for any errors or omissions in these materials. Solarplaza makes no commitment to update the information contained herein. This overview is protected by copyright laws, and may only be reproduced, republished, distributed, transmitted, displayed, broadcast or otherwise exploited in any manner only by accrediting Solarplaza as the source of it and providing a full hyperlink to <https://elfuturosolar.com> or <https://lac.unlockingsolarcapital.com> where it was originally published.



## 1. INTRODUCTION TO CONFERENCES AND WHITE PAPER

Latin America and the Caribbean is a region with abundant sources of renewable energy, especially when it comes to solar energy. It is home to some of the sunniest places on the planet, including the Atacama Desert, which has the highest solar irradiance in the world and potential to generate enough electricity to power all of South America. The region has an immense potential for renewable energy development and has recently been experiencing a significant growth in the amount of installed solar PV capacity. Besides the ever increasing demand for energy, climate change and the rise in frequency of natural disasters have also been key factors influencing the growth in investments in green energy sources. All of these factors have caused investors to flock to the region to become part of its renewable energy revolution.

This report serves as complementary material to the **El Futuro Solar Argentina** (8-9 May, Buenos Aires) and **Unlocking**

**Solar Capital LAC** (28-29 June, Miami) conferences. Solarplaza will be organizing focused on Latin America and the Caribbean. It provides an updated overview of the main facts and figures related to some of the key markets in Latin America, as well as extensive overviews of the following countries and regions: Brazil, Mexico, Argentina, Chile, Colombia, Central America and the Caribbean.

Solarplaza is proud to announce the organization of **El Futuro Solar Argentina** - the best opportunity to gain insights and business connections for successful PV project development in Argentina - and **Unlocking Solar Capital LAC** - an industry-unique conference focusing on the ways to unlock capital for solar development in Latin America. These events will serve as hubs to connect investors with developers and provide an ideal opportunity to form long-lasting business relationships with industry professionals.



# EL FUTURO SOLAR ARGENTINA

8 - 9  
MAY 2018  
BUENOS AIRES



- Attracting more than 250 participants both local, regional and international
- Focused sessions on utility scale, DG, corporate PPAs and how to financially structure PV projects
- Meet the market leaders and future market shakers
- Multiple networking sessions with facilitation of 1-on-1 meetings

<https://elfuturosolar.com>

# UNLOCKING SOLAR CAPITAL LAC

28 - 29  
JUNE 2018  
MIAMI, USA



- 200+ international senior finance and project development executives
- Focus on financing solar PV in Latin America
- Guaranteed matchmaking through our customized software, interactive networking activities and dedicated 1-on-1 sessions
- Taking place in the financial hub of Latin America: Miami

<https://lac.unlockingsolarcapital.com>



## 2. GENERAL OVERVIEW

The growing need for renewable energy in Latin America and the Caribbean has led the region to make its mark on the global solar map. The ever increasing electricity demands from the region’s emerging economies may cause electricity consumption to grow by more than 70 percent by 2030. However, increasing grid capacity to handle the increasing supply is not without its difficulties and challenges. Some countries have already been trying to tackle that problem, like Chile, which has finally completed transmission lines connecting the country’s huge solar power plants in the northern region to the densely populated central region. This grid expansion allows for lower prices and increases the reliability of energy supplies.

However, progress does remain uneven among Latin American and Caribbean countries. Some have opted to quickly

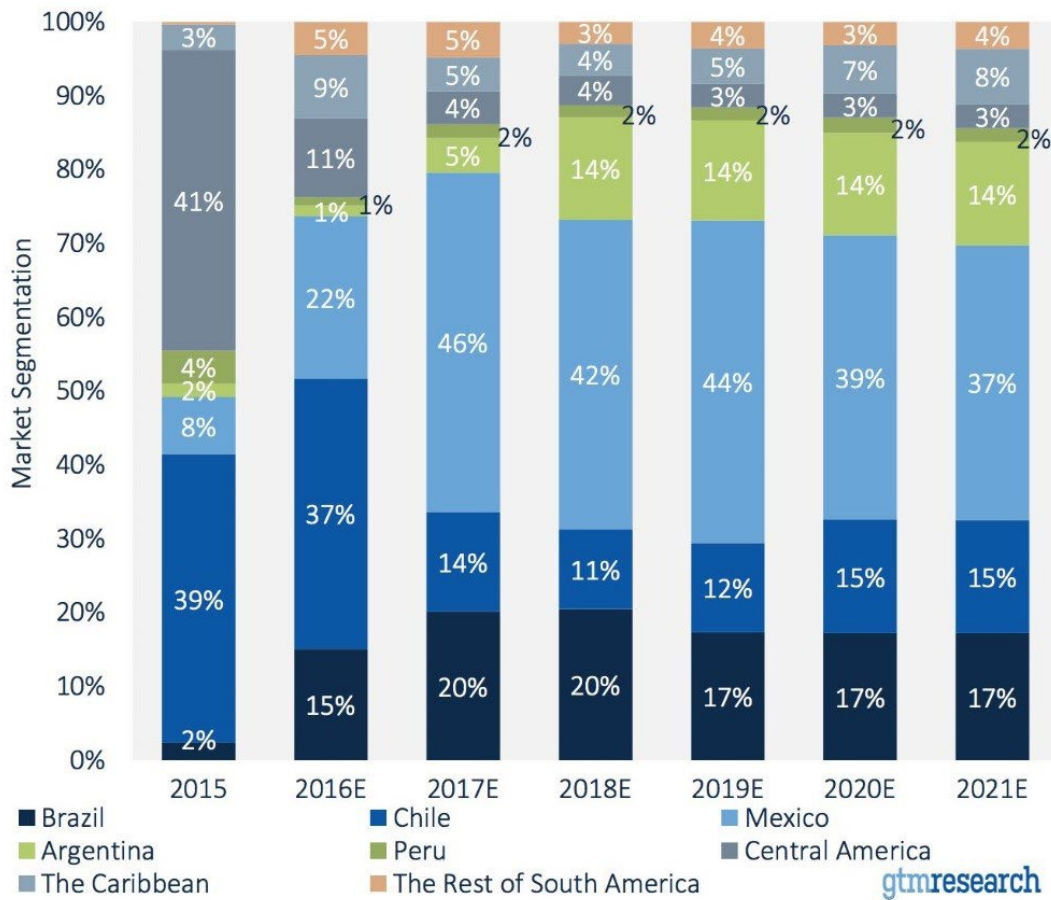
adopt policies to promote and attract renewable energy investments, like Mexico, where green certificates are part of the regulatory framework to encourage higher levels of investments, as well as investments from different industries. Costa Rica was able to run for 300 days using only renewable sources of energy, proving that it is possible for small countries to become 100% sustainable.

Nonetheless, the potential for investments in Latin America and the Caribbean keeps growing as more large-scale projects are developed and commissioned, such as the 754MW Villanueva project located in Mexico or the 292 MW Nova Olinda power plant in Brazil. The region offers an abundance of opportunities for any investor and developer willing to brave the challenges of doing business in an emerging market.



El Romero Solar PV Plant, Chile - Source: Acciona Energy

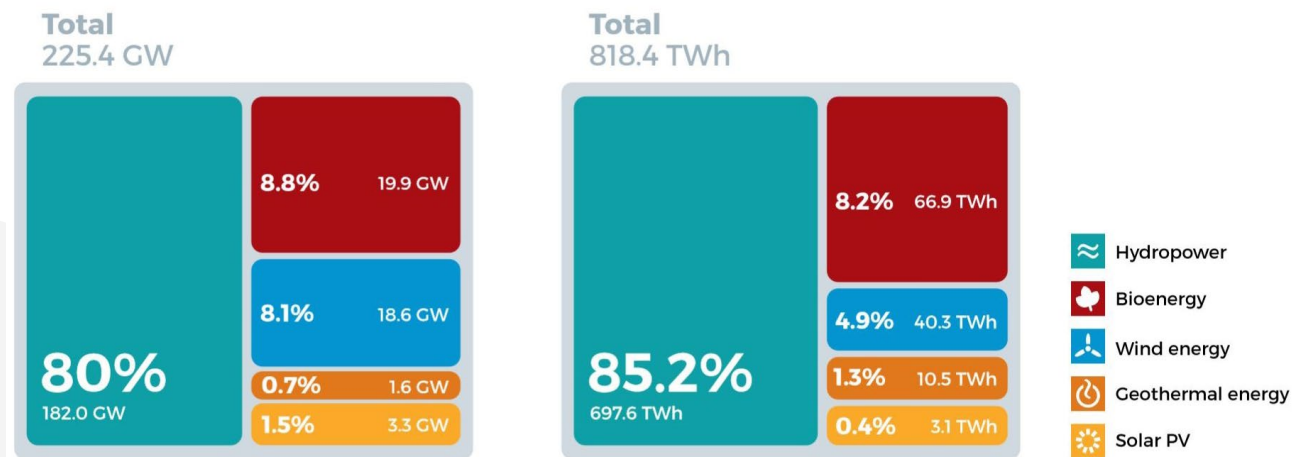
Latin American Markets' Share of Annual Regional PV Demand 2015-2021E



Installed RE capacity and power generation in Latin America and the Caribbean

Installed Capacity (2016)

Power Generation (2015)



Source: IRENA's Renewable Market Analysis Report (2016)

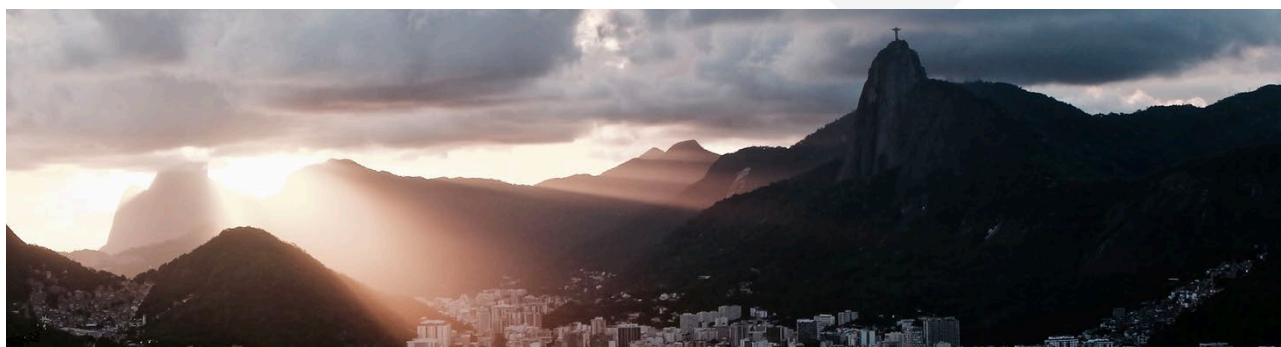
## 3. COUNTRY PROFILES

### A. BRAZIL

#### I. COUNTRY OVERVIEW

Over the past few years, Brazil has been facing a tough economic situation, with negative annual growth rates since 2014. Things changed in 2017, when the country experienced a positive growth rate for the first time in 3 years. The country's IBGE statistics bureau stated that a major driving force for this growth was due to a 13% growth in the agriculture sector. In February 2018, the country's confidence index rose from January's 99.4 points to 100.4, which was above the 100-point threshold that separates pessimism from optimism among businesses. The index showed that firms were relatively more optimistic of the future economic situation, than the present economic situation. This has led experts to forecast a growth in fixed investment of 4.5% in 2018, with 6.1% of growth expected in 2019. One of the main determinants of the recovery will be the sharp deceleration of the inflation rate, which has been decreasing since 2016 from 11% to around 2.8% in 2018.

Despite the turbulent period that Brazil is going through at the moment, the country has been focusing heavily on renewable energy, which make up 80% of the country's energy generating capacity. At the beginning of 2018, the country announced its intention to begin the process of to become an official member of the International Renewable Energy Agency (IRENA). According to Adnan Z. Amin, General Director at IRENA, this decision clearly reflects Brazil's strong commitment to multilateralism and sustainable energy. Also, to encourage small-scale solar, 24 states have agreed adopt the ICMS (state sales tax) exemptions for solar prosumers, which dictates that net-metered solar PV systems up to 1 MW are exempt from paying value-added tax. The size limit for projects under Brazil's net metering scheme was recently expanded from 1MW to 5MW, however the ICMS exemption only applies to solar PV systems up to 1 MW.

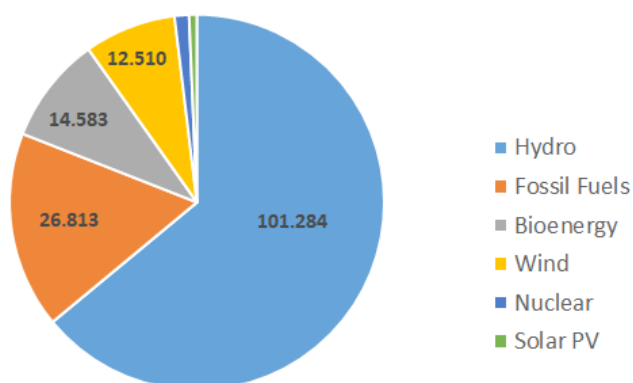




Economic Figures	
GDP	\$1.797.234.000.000
GDP per capita	\$10.826,30
GDP growth	2.1%
Inflation Rate- Consumer Prices	2.8%
Population	210,867,954
Credit Rating (S&P / Moody's)	BB-/Ba2
Corruption Perception Index (CPI)	37
Ease of doing business index	125
Access to electricity	99.5 %
Power consumption per capita	2.373,9 kW/h
Renewable Electricity as % of total output	80.4%

## II. ELECTRICITY MIX

Brazil's Total Installed Capacity by Source (in MW)



For over 40 years Brazil has been focusing on developing renewable energy and it has been able to accumulate a total installed capacity of around 101 GW. The result of this development is that over 80% of the country's energy is produced with the use of renewable sources. Brazil's largest source of renewable energy is hydroelectric power generation much of which comes from the country's Amazon River basin located in the northern regions. The second largest source of energy is fossil fueled power generation, at 26.8 GW, followed by bioenergy at around 14.6 GW, with wind power generation trailing fourth at 12.5 GW, and solar PV coming in last with just over 1 GW.

Compared to last year’s electricity mix, however, the largest amount of growth was experienced in the solar PV segment, which grew from 24 MW to 1,052 MW of capacity. That is a growth of over 400 percent, which indicates a dramatic surge in solar power projects being commissioned. The country is expecting a further 2 GW to be installed from the previous tenders.

### **III. CURRENT & FUTURE SOLAR PROJECTS**

The latest figures from ANEEL show that the country was able to break the threshold of 1GW of solar capacity at the end of 2017, with a current total solar PV capacity of 1,052 MW connected to the grid, which increased greatly from 89 MW that was registered at the beginning of the year. This was mainly due to the commissioning of several large-scale solar PV plants, such as the 292 MW Nova Olinda power plant, the 254 MW Ituverava power plant, the 158 MW Lapa solar park and the 108 MW Horizonte solar park, all of which are owned and operated by Enel Green Power.

In December 2017, Brazil held an ‘A-4’ power auction where - solar being the prevailing source - around 574 MW of PV capacity was awarded - making up for 85%

of the total amount of awarded power capacity. Most of the awarded PV projects will be located in the state of Piauí, with the rest of the PV projects being located in Pernambuco, Bahia and São Paulo. According to the government, all of the awarded projects must be connected to the grid by the end of 2020. It still needs to be seen if these projects can be finalized within the given timeframe, as some projects from the 2014 and 2015 auctions experienced some delays and had to start operations after their planned commercial operation dates.

In April 2018, the Brazilian government held another ‘A4’ power auction where 806.6 MW of solar energy was awarded at a final average price of USD 35.25 per MWh. In total, 1,024.5 MW capacity was awarded in this latest auction, with 114.4 MW awarded to wind, 41.66 MW to hydro and 61.8 MW to geothermal.

Besides all of these operational solar plants, ANEEL reports that there is still 729 MW of capacity currently under construction and 908 MW of capacity contracted, but not yet under construction. Should all those projects materialize over the course of 2018, Brazil is set for another year of remarkable growth.

## B. MEXICO

### I. COUNTRY OVERVIEW

Mexico is the fifth largest country in the Americas by total surface and has the potential to become one of the top five economies in the world by 2050. Such growth needs will require massive amounts of energy in order to provide power to the growing infrastructure and population. To keep up with this growth, the Mexican government implemented a constitutional energy reform at the end of 2015 to open up the formerly closed electric and hydrocarbon sector, allowing the entrance of new players and stakeholders. Since then, Mexico organized three power auctions, resulting in around 5 GW of energy capacity being awarded to solar PV, and now holds the record for the cheapest average solar bids in the world. Despite these incredibly low prices, there is still a lot of work to be done in order to realize and connect all of these projects to the grid and to optimize the framework for renewable energy, especially with the fourth power auction taking place in the first half of 2018 and the coming presidential elections in July 2018.

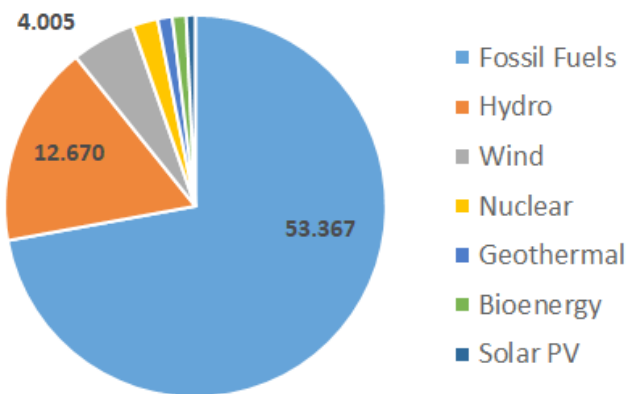




Economic Figures	
GDP	\$1,046,920,000,000
GDP per capita	\$9,707.00
GDP growth	2%
Inflation Rate- Consumer Prices	5.34%
Population	129.163.276
Credit Rating (S&P / Moody's)	BBB+/A3
Corruption Perception Index (CPI)	29
Ease of doing business index	49
Access to electricity	99.2 %
Power consumption per capita	2.100 kW/h
Renewable Electricity as % of total output	25%

## II. ELECTRICITY MIX

Mexico's Total Installed Capacity by Source (in MW)



In 2017, Mexico's total installed power generation capacity amounted to 74 GW, with fossil fuels making up more than two thirds of the total installed capacity. Despite being one of the

largest petroleum and other fossil fuel producers in the world, Mexico's oil production has been steadily decreasing. Hydroelectricity makes up 12.6 GW of the country's energy mix and has been increasing ever since the country's been organizing power auctions. Wind energy is the third largest in capacity with 4 GW, followed by nuclear with 1.6 GW and trailed by geothermal with 914 MW, bioenergy with 839MW and a modest 570 MW of solar.

## III. CURRENT & FUTURE SOLAR PROJECTS

Over the last few years, Mexico's solar industry came out of nowhere to become one of the leading markets for solar energy around the world. Mexico

currently holds the lowest bid for solar prices seen in Latin America to date, secured by Neoen at \$19.8 per MWh. Remarkably, the average price per MWh dropped significantly after each auction, from \$44.90 per MWh in the first auction to \$31.70 in the second round and \$20.53 in the third auction.

So far, Mexico's solar capacity consists of small residential solar systems, accounting for around 18 percent of all solar capacity, commercial-scale systems (up to 1 MW), representing 10 percent of overall capacity, and large-scale utility plants accounting for the remaining amount.

Many of the country's large scale projects are set to come online by the end of 2018 and by 2019. It is estimated that an additional 13,000 MW of clean energy generation will be connected to the Mexican grid by 2021. The biggest project to date in Mexico, the 754MW Villanueva project located in the state of Coahuila, was awarded during the country's first energy auction in 2016 and is scheduled to be completed in the

second half of 2018. In March 2018, the first phase of the park consisting of 310 MW stated energy production. Another project that was also approved in the 2016 auction was the 238 MW Don Jose solar project in the state of Guanajuato, which is also expected to come online by the end of 2018. Both projects were awarded to Enel Green Power, but were sold during the second half of 2017 to pension funds in Canada and Mexico, once again reflecting the increasing interest in renewables from conventionally conservative financial institutions.

Other projects under construction worth mentioning include: the 350MW Cubico Alten solar park in the state of Aguascalientes owned by Alten Renewable Energy, the 342MW Potosi solar farm in the state of San Luis de Potosi owned by Fotowatio Renewable Ventures and Cubico Sustainable Investments, and the 157 MW Trompezon Solar Farm owned by Engie.

## C. ARGENTINA

### I. COUNTRY OVERVIEW

Argentina is the eighth largest country in the world (in terms of territory) and has the third largest economy in Latin America (in terms of GDP), making it a regional economic engine with a wide variety and abundance of natural resources. The country boasts 53 percent of agricultural land with large reserves of oil, gas, minerals and water. It also offers optimal conditions for the development of renewable energy, such as solar, wind, and hydro power development, among others. The current situation of renewables in Argentina is still in a very early phase, with less than 2 percent of the country’s electricity being generated by (non-hydro) renewable energy. Recently, Argentina’s government has been implementing plans to change that, especially because of the country’s dependence on fossil fuels, which accounts for 60 percent of the country’s electricity production.

In May 2016, the Argentinian Ministry of Energy launched an innovative renewable energy bidding program called RenovAr, targeted at producing 20 percent of Argentina’s electricity from (non-hydro) renewable sources by 2025. The public tendering program contemplates a series of fiscal incentives and financial support mechanisms, along with regulatory and contractual enhancements. To reassure private investors, the World Bank structured a guarantee in support of the government’s Renewable Energy Fund (FODER), which will be responsible for reducing financial risks for investors. The World Bank guarantee, together with the International Finance Corporation, have worked hard to create opportunities to link Argentina’s renewable energy potential to private investments. The aim of this program is to overcome some of the investment barriers that resulted in the failure of previous government attempts.

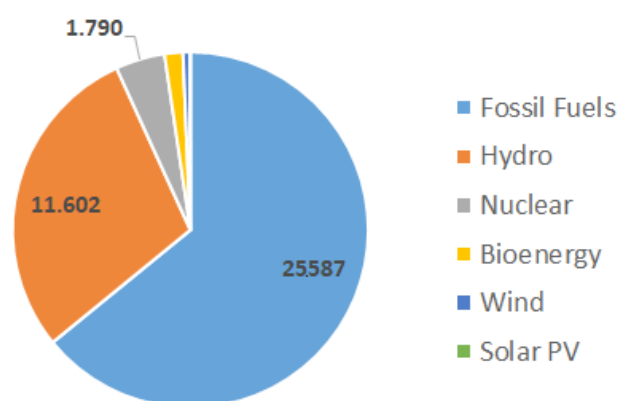
Economic Figures	
GDP	\$561,731,100,000
GDP per capita	\$12,682
GDP growth	3.9%
Inflation Rate- Consumer Prices	25.40%
Population	44,293,293
Credit Rating (S&P / Moody’s)	B+/B2
Corruption Perception Index (CPI)	39



Economic Figures	
Ease of doing business index	117
Access to electricity	99.2%
Power consumption per capita	2.794 kW/h
Renewable Electricity as % of total output	34%

## II. ELECTRICITY MIX

Argentina’s Total Installed Capacity by Source (in MW)



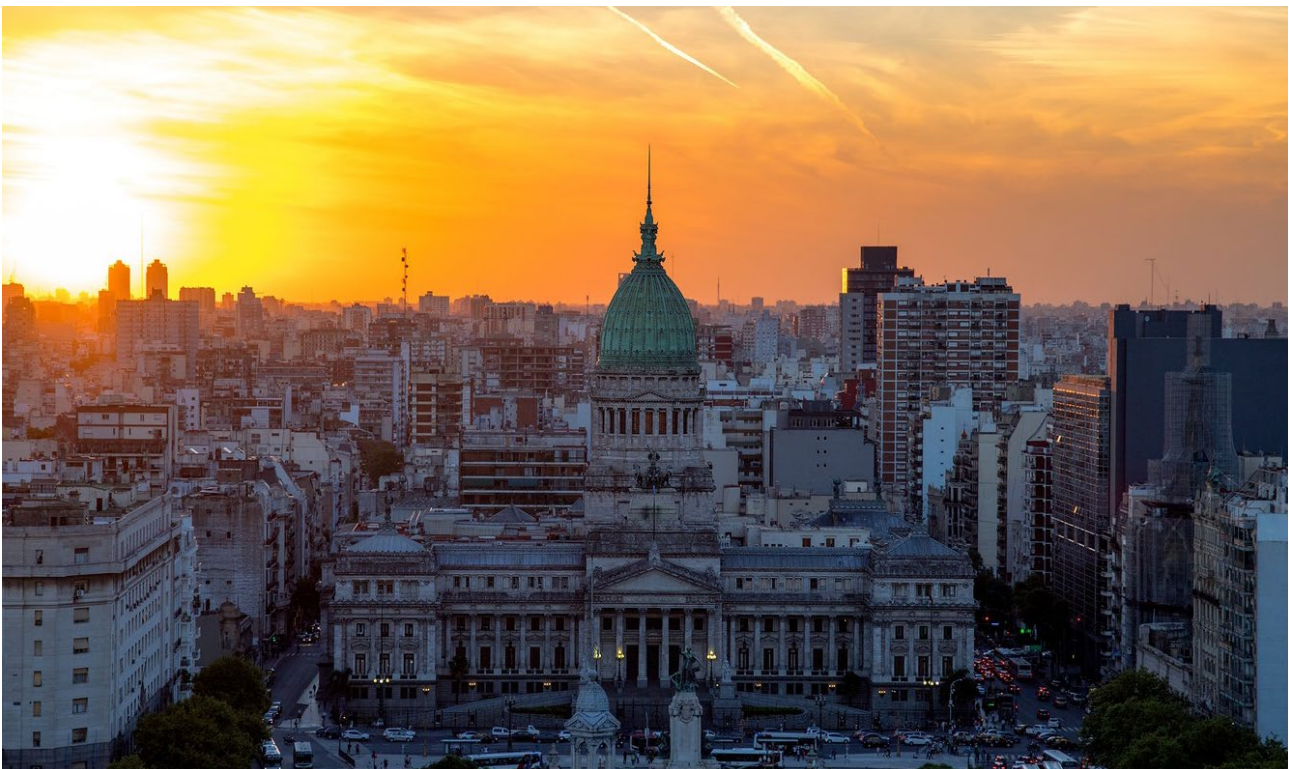
Argentina’s main sources of energy stem from fossil fuels, which account for more than two thirds of the total energy capacity. The country’s largest energy capacity comes from thermal sources, which account for an estimated 25,587 MW of energy. The second largest energy source is hydropower, accounting for 11,620 MW of Argentina’s electricity generation. Nuclear power is the third largest contributor of energy, with an estimated capacity of 1,790 MW, followed by bioenergy accounting for 665 MW. Wind power and solar PV provide the smallest share of capacity, amounting to 257 MW and 9 MW of the total energy mix.

## III. CURRENT & FUTURE SOLAR PROJECTS

One thing to take into account is that the majority of projects are still in the early stages of development, with only seven projects already being under construction. The most promising project under construction is the 300 MW Cauchari solar project in Jujuy, Northern Argentina. Some big projects were also able to reach financial close, such as the 80 MW project in Cuyo, San Juan developed by JinkoSolar and the 42 MW Nonogasta solar project in La Rioja by 360Energy. Other projects were sold after the PPAs were signed, like the 100 MW project in NOA, Salta which was bought by Neoen from Fieldfare & Isolux Ingenieria, and the 22 MW project in San Luis bought from Diasher by Total Eren. It should be noted that the majority of small scale project are from local developers. These projects would be easier to put into operation, as local developers have more support from the Argentinian government.

The World Bank’s involvement has been repeatedly praised by private developers, equity providers and lenders, and has been stated as an important reason when considering to enter the Argentine market. The RenovAr project is facilitating Argentina’s reentry into international finance markets, as well as helping the

country in rebuilding its track record with financial and industrial investors. It still needs to be seen how the development of the solar PV projects will progress, nonetheless the rounds that took place show a huge potential for over 1.7 GW of solar PV capacity to be connected to Argentina’s grid in the coming years.



## D. CHILE

### I. COUNTRY OVERVIEW

Chile has historically been one of the most attractive countries in Latin America for foreign investors, mainly due to its high sovereign rating, a stable regulatory framework and a market-friendly environment. In 2017, the Chilean economy grew 1.7 percent, compared to 1.5 percent in 2016. This shows that the economy in Chile is improving, but the growth rate was still among the lowest since the 2009 global economic crisis. Experts believe the economy will rebound in 2018 due to the rise in confidence following the presidential elections of November 2017.

According to a report by the Organization for Economic Cooperation and Development (OECD), in order for Chile to improve its growth outlook, it will need to address its productivity levels, which are relatively low when compared to other advanced economies. It will also need to improve access to quality jobs, and at the same time take steps to reduce the high levels of inequality. The OECD report also recommends that to sustain growth, Chile should think about diversifying its economy beyond activities related to natural resources. It is also recommended to lower entry barriers and regulatory complexity in order to help young firms to innovate, grow and compete.

Economic Figures	
GDP	250.458.000.000
GDP per capita	\$13.872
GDP growth	1.7%
Inflation Rate- Consumer Prices	2.3%
Population	18.054.726
Credit Rating (S&P / Moody's)	A+/Aa3
Corruption Perception Index (CPI)	67
Ease of doing business index	55
Access to electricity	99.6%
Power consumption per capita	3,819 kWh
Renewable Electricity as % of total output	45.6%

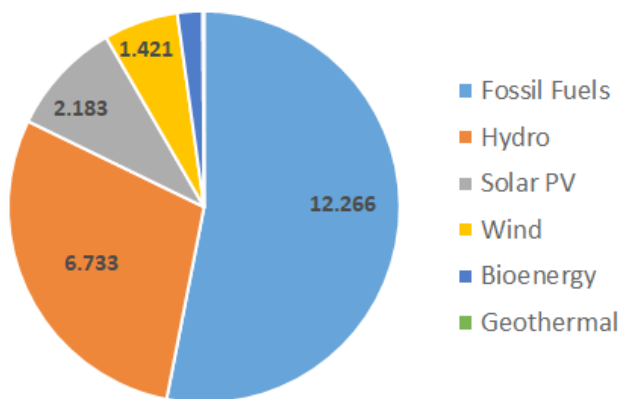


Besides all of the needed improvements, the economic outlook for Chile for the coming years is looking up. The country’s economy is projected to grow 2.9 percent in 2018 and 2019, as copper prices are picking up once again and investment is set to recover gradually. The biggest (power-related) issue that the country had been facing up until now had to do with the National Electric System. This was finally resolved in November of 2017, when - for the first time in history - the country merged its

Central Interconnected Systems (SIC) and its Northern Interconnected System Grid (SING). The inauguration of the new National Electric System connected an installed capacity of approximately 24,000MW and a demand of 11,000MW. Construction for the connection of both systems began in August 2015, with an investment of USD 700 million. The new system will result in a more secure and efficient electricity market, especially by decreasing energy costs.

## II. ELECTRICITY MIX

Chile’s Total Installed Capacity by Source (in MW)



In 2017, Chile had a total installed generation capacity of approximately 22,755.77 MW, with fossil fuels taking up more than half of the total capacity with 12,226MW, according to the country’s National Energy Commission (CNE). The country’s capacity for fossil fuels consist of 21% coal, 20% natural gas and 13% diesel. This is mainly due to Chile’s lack of major fossil fuel deposits and the

increase in frequency and intensity of recent droughts.

To combat such challenges, Chile uses one of its greatest natural resources, hydropower, which accounts for 30% of the total installed capacity. The county’s lack of fossil fuel deposits have caused a great dependence on imports, leading to to high electricity costs due to fluctuating prices and unreliability with fossil fuel imports. These factors show that the potential for renewable energy development is currently higher than it has ever been. Over the past years, there has been an increasing interest for solar and wind energy development. Chile is one of the only countries in the world were renewable energy can be sold on the spot market, rivaling the prices of conventional electricity. The merchant market is clearly represented in the energy mix, comprising of 9% solar PV and 6% wind capacity.

### III. CURRENT & FUTURE SOLAR PROJECTS

In December 2017, Chile’s CNE announced in its monthly renewables report that the country’s cumulative installed solar PV capacity had increased from 1.04 GW at the end of 2016 to around 1.83 GW by the end of 2017. However, things changed rapidly by the beginning of 2018 when two large scale solar plants were connected to the grid in early January, namely, the 11 MW Santiago solar project located near the country’s capital city owned

by EDF and Andes Mining Energy, and the 100 MW Pelicano PV plant located in La Higuera, Coquimbo owned by SunPower. If these two new plants are also considered, the newly installed capacity in Chile over the past 12 months would add up to around 1 GW. The report also showed that 281 MW of solar PV capacity is still under construction, with 7.58 GW of PV projects currently under review and 15.62 GW of authorized solar projects still awaiting construction. All of these signs provide a positive outlook for the Chilean solar energy market for the coming years.



## E. COLOMBIA

---

### I. COUNTRY OVERVIEW

Colombia has one of the biggest economies in Latin America and has also experienced a relatively stable growth in recent years. In 2017, the country's economy slowed down due to falling global oil prices, which also contributed to lower government revenues. Another factor affecting the country's financial situation is the coming presidential election, which is planned to take place in May 2018.

When it comes to the country's energy sector, Colombia is mostly focused on hydropower as its main source of electricity. The country has remained relatively slow to adapt to non-hydro renewable energy sources compared to its other countries in the region like Chile and Brazil. However, in May 2014 the Colombian government passed Law No. 1715, aimed at promoting the development and use of renewable energy sources by providing tax exemptions for energy projects; exemptions on import duties; as well as the possibility of accelerated depreciation up to 20% per

year for renewable energy investments. It also established the conditions by which small generators can link and sell electricity to the grid at scarcity price. For the coming 15 years, the country has reserved 40% of the 5,362 MW of energy capacity set to be added to the grid for renewable projects.

At the end of 2017, Colombia's Minister of Mines and Energy announced that the bidding for the country's first auction for large-scale solar will be launched before the next presidential elections in May, with the possibility of the auction taking place by the end of 2018. The country is turning to solar and renewables in order to diversify its electricity mix, which can be seen by one of the country's new pieces of legislation, Decreto 348 del 1 de marzo de 2017, which is aimed at supporting the installation of small and medium-sized renewable energy and solar power generators across the country.



Economic Figures	
GDP	\$309,167,000,000
GDP per capita	\$6,301
GDP growth	1.6%
Inflation Rate- Consumer Prices	4.09%
Population	49,065,615
Credit Rating (S&P / Moody's)	BBB-/Baa2
Corruption Perception Index (CPI)	37
Ease of doing business index	59
Access to electricity	97%
Power consumption per capita	1,174 kWh
Renewable Electricity as % of total output	70.6%

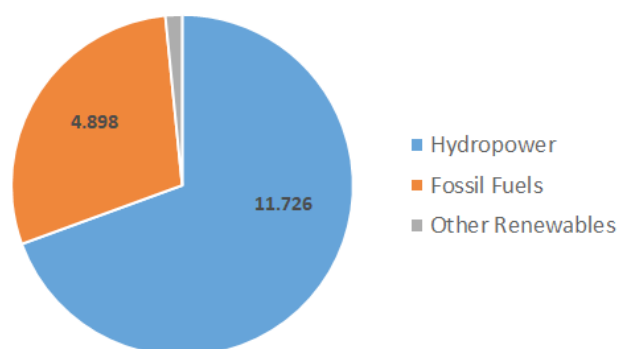
## II. ELECTRICITY MIX

Colombia’s total installed energy capacity amounted to 16,660 MW in 2017, with 69% of the country’s energy being supplied by small and large-scale hydro dams. Colombia has been slow to progress towards non-hydro renewable energy due to its long-term strategy of hydropower generation with thermal energy as its main backup. One of the reasons for this strategy is the country’s numerous fossil fuel and natural resources, including productive petroleum reserves and extensive coal reserves.

During periods of droughts, the country’s thermal generators provide backup energy to the grid at a scarcity price set by the Energy and Gas regulatory Commission (CREG). Thermal energy from nonrenewable energy sources such as coal and gas account for 29.4% of Colombia’s

energy supply, while renewable energy sources only make up 1.6% of the total capacity. Colombia has a significant amount of solar and wind resources, but has not been able to exploit these resources to the same degree as its other larger Latin American neighbours.

Colombia’s Total Installed Capacity by Source (in MW)



### III. CURRENT & FUTURE SOLAR PROJECTS

Colombia’s solar PV development has remained relatively quiet over the past years. Most of the solar projects have been at commercial and industrial scale. The country currently has only one utility-scale solar power plant in operation, the 9.8 MW Celsia Solar Yumbo PV project, located in the southwestern region of Valle de Cauca. The project was commissioned in September 2017 and is Colombia’s first utility-scale solar PV project. It was constructed and is operated by Colombian electricity company Celsia, which has future plans to install 250 MW of solar energy in Colombia and Central America.

The company also owns and operates a 902.4 kW solar PV project located in Palmira, Valle del Cauca.

Besides those two active projects, Celsia is also working on constructing a 100 MW solar farm located in Valledupar, an 80 MW solar project in Los Santos and an 8.8 MW solar farm in Santa Rosa de Lima, all of which are expected to come online by the end of 2019. Expectations are high for the development of solar PV in Colombia in the near future, especially with the country’s first auction for large-scale solar taking place at the end of 2018. At least 1 GW of renewable energy generation capacity is expected to be contracted, with more than 160 solar projects registered.



## F. CENTRAL AMERICA (HONDURAS, GUATEMALA, NICARAGUA, PANAMA, COSTA RICA AND EL SALVADOR)

---

### I. COUNTRY OVERVIEWS

Central America is progressively increasing the amount of unconventional renewable energy in its electricity mix for different reasons. First of all, the low-diversified power generation matrices are still highly dependent on fossil fuels, such as oil, and on hydropower. The region's low diversification of energy sources makes it vulnerable to both the volatility of international oil prices and to the effects of droughts, which have been increasing in frequency, intensity and length. Second of all, most of the Central America countries have established international commitments to mitigate and adapt to try to reverse the effects of climate change by reducing emissions of greenhouse gas (GHG). These factors show that Central American countries have a firm commitment to the transition towards clean and sustainable energy.

Renewable energy, such as solar and wind, have been shown to have the capabilities to solve these problems, however there are some important factors that need to be taken into consideration. In order to integrated these types of renewable energy into

the electricity grid, more specialized systems of management are needed due to the intermittent availability of these energy sources. Customized systems prevent power systems from shifting to emergency status, leading to a smaller number of blackouts.

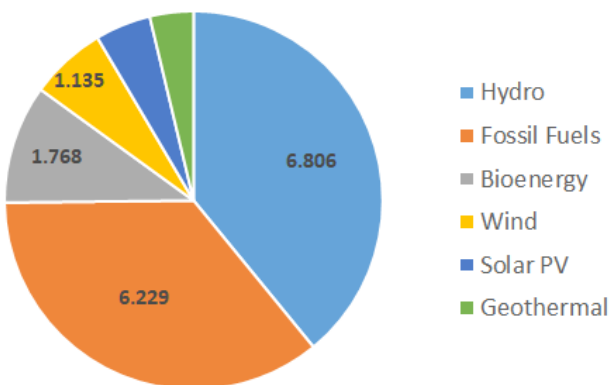
In June 2017, national and regional stakeholders got together to discuss the methodologies used in the Central American Clean Energy Corridor (CECCA) and to work on validating the preliminary findings of IRENA's Renewables Readiness Assessment (RRA) of Panama. Both the CECCA and RRA Panama support a cost-effective integration of larger shares of renewable energy in the region and have identified two pilot projects to increase renewable energy development. One is a regulatory project assessing investment incentives for wind and solar PV plants in Panama aimed at promoting improvements through amended PPAs. The other is a project focusing on the flexibility of the national grid and on supporting the lack of renewable energy training.



Economic Figures	
GDP	\$205,673,300,000
GDP per capita	\$4,336.16
GDP growth	3.9%
Inflation Rate- Consumer Prices	4.0%
Population	47,432,145

## II. ELECTRICITY MIX

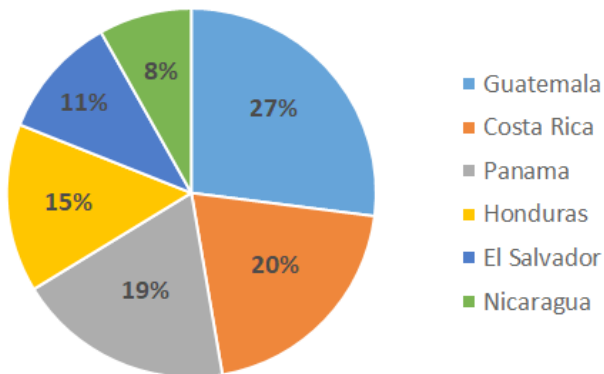
Central America’s Total Installed Energy Capacity by Source (in MW)



The energy mix in Central America amounted to 16,586 MW of total installed energy capacity at the end of 2016. The mix is divided mostly between hydropower (41%) and oil and diesel (33.3%). However, the region has been facing some concerns about its dependence on oil, its environmental

conditions, and its energy security, which has forced the region to develop other renewable sources. The Central American region also has a remarkable 21% of non-hydro renewable energy share of the total production, which increased from 13% in 2012. The largest non-hydro energy source is biomass, amounting to 1,312 MW of the total capacity. Wind and geothermal energy are the following two most important non-hydro clean energy sources. The use of solar energy is still in the early stages in the region, despite the favorable conditions for solar PV development, with only 778 MW of cumulative solar PV capacity. A key factor to take into consideration is the fact that all of the countries in the region vary greatly when it comes to their development status, which also affects - and stresses - the need and importance of renewable energy sources.

Total installed energy capacity in Central America by country (in %)



Guatemala has the most amount of installed energy generating capacity of all of the Central American countries, with its 4,704 MW. The main source of clean energy comes from hydropower and bioenergy, accounting for 12% of the country’s total installed capacity. At the end of 2017, Guatemala’s Ministry of Energy and Mines announced a national energy plan aimed at reducing emissions of greenhouse gases by 29.2% by 2032, seeking to achieve that by promoting renewable energy and increasing energy efficiency.

In 2017, Costa Rica was able to produce 100% of its electricity using only renewable energy for a record-breaking 300 days. The country currently generates its electricity using mostly hydropower, wind and geothermal energy, which account for more than two thirds of the installed capacity.

Panama has been focusing more on the development of solar energy lately, since the country expects energy demand to increase due to new infrastructure

projects planned for the coming years. Its current installed capacity for solar energy accounts for 15% of the total installed solar PV capacity in the region, which amounts to 130 MW. Besides the current renewable energy projects, Panama has various solar and wind energy projects still in the pipeline.

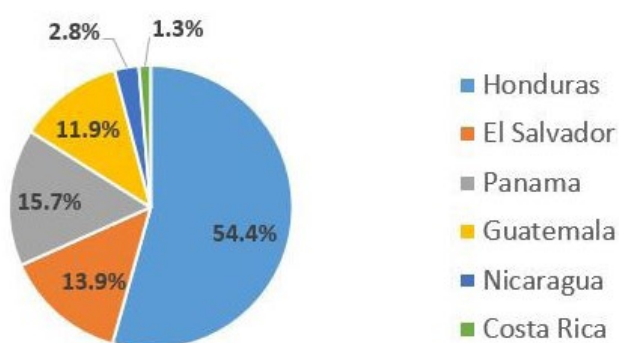
Honduras has a total installed energy capacity of around 2,572 MW, of which around 60% comes from renewables. The country gets a large part of its renewable energy from its 451 MW of installed solar PV capacity, which accounts for more than half of the region’s total solar capacity. This is largely due to its import, income and sales tax exemptions to renewable energy generators; and its low entry barriers for private sector participation in the energy field.

The two countries in Central America with the least amount of installed energy capacity are El Salvador (1,887 MW) and Nicaragua (1,418 MW). El Salvador’s installed energy capacity mix includes 42% of fossil fuels, 27% of geothermal energy and 24% of hydropower. Despite having one of the lowest amounts of installed capacity among other Central American countries, the country has experienced great interest from the private investment sector, such as a \$33.1 million investment from AES El Salvador towards improving the country’s network coverage of electrical distribution that in turn will benefit the country’s residential, commercial and industrial sector. When it comes to Nicaragua, the country generates

around half of its energy from renewable sources (including hydro), and targets 73% of renewable energy generation by 2030.

### III. CURRENT & FUTURE SOLAR PROJECTS

Total installed solar PV capacity in Central America by country (in %)



Honduras tops the charts as the country with the most installed solar PV capacity in Central America with 451 MW. At the beginning of 2017, Honduras became the first non-island nation in the world with more than 10% of solar in its electricity mix. The country also has some of the largest PV projects in the region, such as the 145.9 MW solar park in Nacame. Currently, there are three plants under construction in the departments of Choluteca and Vale, amounting to an additional 82 MW of solar contributions to the system once connected to the grid, according to the Honduran newspaper La Prensa.

Panama has the second most installed solar PV capacity among its neighbouring countries in Central America, with around 130 MW of installed capacity.

This is due to the fact that Enel Green Power (EGP) has connected its 42 MW Sol Real project to the grid in April 2017. Most of Panama’s solar energy capacity comes from PV plants ranging in size from 9 MW to 10 MW and from PV systems installed under the country’s net metering scheme, which added an extra 12 MW of capacity to the overall mix. EGP announced in November 2017 that construction has started on its 8 MW Estrella Solar solar PV plant. The plant will be constructed by EGP and is expected to be completed by June 2018. In addition to that project, Panama’s Autoridad de los Servicios Públicos (ASEP) announced that the country has granted final approval to 20 PV projects amounting to approximately 300MW, expected to be connected to the grid in the near future.

El Salvador became home to one of Central America’s largest solar parks, a 101 MW solar plant, after it was commissioned in April 2017. The project is located in the La Paz region and is operated by French independent power producer Neoen. The first auction for renewable capacity took place in 2014, and contracted 94 MW of solar PV capacity. In January 2017, the second auction was held and awarded 120 MW of solar PV capacity and 50 MW of wind.

El Salvador has also received USD 15 million of investments from FinnFund, a Finish finance company, to fund the construction of 10 PV projects with a combined generation capacity of 100 MW. All of these renewable energy



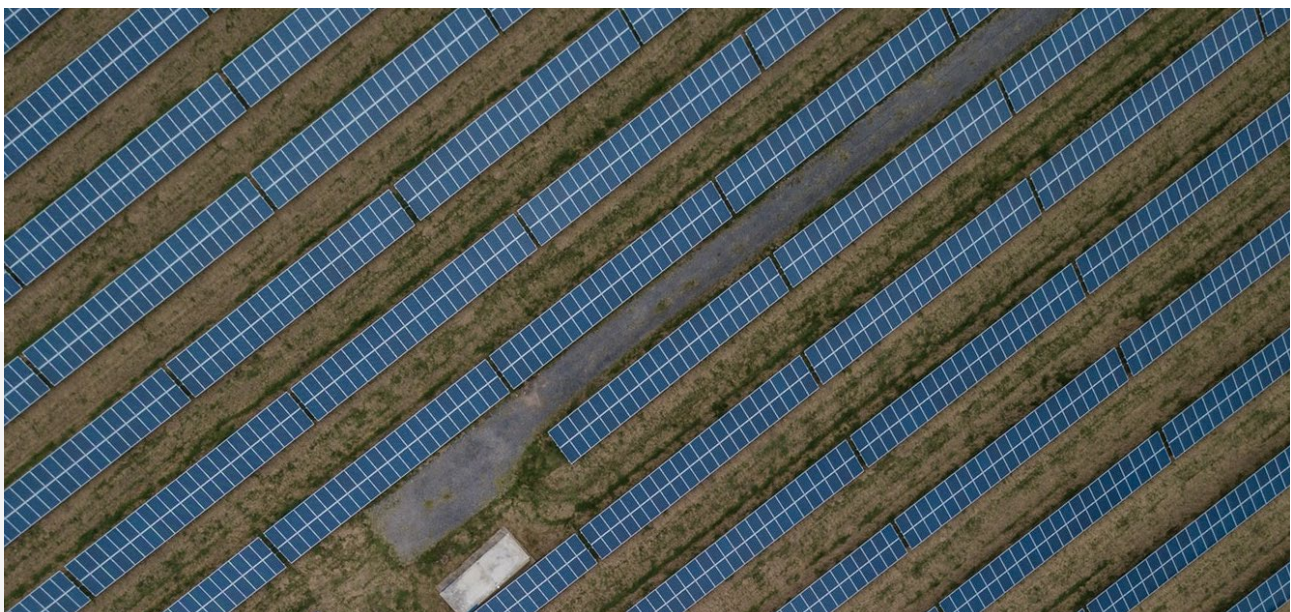
projects are expected to come online by 2019 and 2020.

Guatemala currently has around 99 MW of installed solar PV capacity, according to the 2017 electricity sector statistics published by the country’s Ministry of Energy and Mines. This is mainly due to the active 80 MW Horus Energy station and the country’s off-grid and microgrid projects. The country also has several projects in the pipeline, such as the 1.7 MW Medax Solar project located in Santa Rosa and the 2.5 MW Solaris 1 located in Jutiapa.

Nicaragua currently has 50% of renewable energy (including hydro) as a part of their electricity mix, of which only 23 MW was solar PV capacity. The country is planning to expand their current capacity by adding a 100 MW solar park and a 12.5 MW solar plant to the grid. Both projects have been

approved, with the latter already being in the construction phase. Mini-grids and solar panels have been found to be better solutions for Nicaragua in order to reach the people living in remote areas in the mountains and on the Caribbean coast.

Costa Rica was able to set new records in 2017, when it ran exclusively on renewables for 300 days, though solar energy only contributed to a small portion of that. The country only has a few large scale projects in operation, such as the 5 MW Solar Juanilama project, which was commissioned in September 2017 by Costa Rica’s Coopeguanacaste cooperative as a way to promote the use of clean technologies that reduce emissions of greenhouse gases. Based on the projections by the Costa Rican Ministry of Environment and Energy (MINAE), the country’s solar energy capacity could grow to reach 1.3% of the total energy mix by 2030.





## G. CARIBBEAN

### I. REGIONAL OVERVIEW

The Caribbean region depends highly on income from tourism, making reliable and cheap energy supply a large necessity for the success of the region. Many small economies in the Caribbean have been growing at a fast pace over the last three years due to high tourism levels. In 2017, the average GDP growth rate was 1.7% in service-oriented economies. Some countries performed even better, such as the Dominican Republic, which surpassed the average by growing an estimated 4.6% in the same year.

The region's greatest threats include its vulnerability to climate change and exposure to natural disasters. Such environmental damages have cost the region an estimated of USD 8.6 billion between 1996 and 2015. Since then, major hurricanes, such as Matthew, Maria and Irma, have caused unprecedented damages. As a result, a key priority for the region should be properly assessing these challenges and building resilience for future disasters. Besides that, the region has great economic potential and growth opportunities, especially when it comes to renewable energy. The region has a strong reliance on imported and

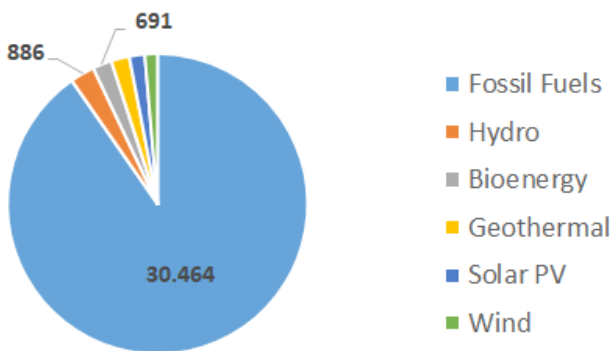
subsidized fossil fuels, which gives it even more of an incentive to transition to cleaner sources of energy. High solar irradiation levels in the Caribbean are the main driver for the consideration of developing solar energy projects, however the region has yet to realize its full potential, both in large-scale and residential projects.

Some factors discouraging investors from entering the region include: high poverty levels; high corruption levels; lack of adequate education; logistical costs involved with shipping materials to the islands; and the deeply ingrained public mistrust towards government officials and utility companies. Despite the major challenges, there is still bountiful hope for the Caribbean to meet its clean energy potential by drastically increasing its share of renewable energy capacity. With programs such as the Caribbean Renewable Energy Fund and the Caribbean Center for Renewable Energy & Energy Efficiency (CCREEE), the region is doing its best to mitigate its major risks and barriers in order to continue its efforts towards realizing a sustainable future.

## II. ELECTRICITY MIX

The Caribbean community (CARICOM) member states reached an estimated 34,975 MW of cumulative installed capacity by the end of 2017. Most of the generation capacity consists of fossil fuels, accounting for 62% of the region’s total installed capacity, including 44.4% of oil, 13.4% gas and 4.6% of coal. The region’s dependence on imported fossil fuels together with the high cost of power generation have encouraged CARICOM countries to focus on non-hydro renewable energy for future growth.

Caribbean Countries’ Total Installed Energy Capacity by Source (in MW)



Hydropower and bioenergy accounted for 886 MW and 691 MW of the total regional installed capacity, making them the first and second most utilized renewable energy source by exploiting the region’s hills, landscape and climate. Bioenergy accounted for 2% of the total capacity, with immense potential in Jamaica and the Dominican Republic for future growth. Solar and wind energy accounted for 560 MW and 461 MW worth of energy respectively of the

region’s total installed capacity. These numbers indicate how underdeveloped the region’s bioenergy, solar and wind industries are, despite the region’s enormous potential and interest for renewable energy.

## III. CURRENT & FUTURE SOLAR PROJECTS

There are several large-scale projects that are still under construction. The Dominican Republic has three PV projects planned for the coming years: a 25 MW project in Barahona, a 50 MW solar park in Mata de Palma and a 58 MW solar park in Guayubin. The 25 MW project, named Parque Solar Canoa, is already under construction by Emerald Solar Energy and is expected to be completed in the first half of 2019.

Jamaica is also focusing on energy diversification and wants to intensify its efforts to reduce the cost of energy, which is one of the highest in the region. In December 2017, the government announced that construction has started on the country’s 37 MW solar power plant located at Paradise Park, Westmoreland. The project is partly owned by Neoen and Rekamniar and is expected to come online by the end of 2018. Once completed, this will be Jamaica’s largest solar project. The country’s first utility-scale solar project, a 28 MW solar facility developed by Global Energy Services (GES), was connected to the grid in February 2018.

Bad weather and hurricane conditions have been pushing countries in the Caribbean region to switch towards methods of producing energy that are more reliable and sustainable, such as microgrids or off-grid technologies. Solar-plus-storage technologies have also been able to give relief to people living in remote locations in hurricane areas where it takes a long period of time to fix damages to the grid, such as Puerto Rico and Haiti.

In Puerto Rico, the Solar Foundation is planning on building 12 microgrids ranging from 7kW to 18kW in remote locations across the island with 20 kWh of batteries in order to build short-term energy grid resiliency and improve access to clean water and energy.

In Haiti, Sigora is managing over 1 MW of generation and 11km of transmission lines during the first year of their plan to bring electricity access to as many as 8,000 people. Their plan is to keep on expanding their solar energy installations and transmission lines with the ultimate goal of installing 100 MW of renewable energy capacity by 2025 in order to electrify 2 million people, while at the

same time creating 5,000 new jobs for local workers. As 75% of the population is not connected to the national grid, there is huge potential for off-grid technologies. Some of these off-grid initiatives include companies such as Re-Volt, which is an off-grid utility company serving around 14,000 inhabitants in Haiti, and Biohaus, which has teamed up with NPH Germany to provide Haiti with the largest active independent smart-grid in the Caribbean, combining 450 kW of PV generation and battery storage to provide 100% clean energy and reduce the nation's reliance on diesel generators.

Smaller Caribbean islands are also catching up to the solar energy transition. In November 2017, The Dutch Ministry of economic affairs and climate (EZK) announced the commissioning of a 4.1 MW solar park combined with 5.9 MWh of battery storage located on the island of Sint Eustatius. Additionally, in 2017, the government of St. Lucia announced that it started construction on a 3 MW solar PV farm. The project is being developed by GRUPOTEC and is expected to be commissioned by June 2018.



## 4. GENERAL SUMMARY

---

The Latin American and Caribbean regions have a great diversity when it comes to the share of renewables in each country's energy mix. It ranges from Costa Rica, a country that was able to power itself for 300 days using 100% renewable sources; to countries like Mexico, which relies on fossil fuels to generate 75% of its electricity, despite the huge potential for solar and other renewables. These differences may arise from the availability of fossil fuel reserves and hydropower opportunities, which is the case in for instance Argentina and Colombia, but may also be due to the economic situation of the individual countries and lack of financial resources to exploit these reserves.

According to the 2017 Renewables Global Status Report by REN21, the LAC region remains at the forefront in the use of competitive bidding for renewable energy project allocations, with many tender attracting record-setting participation. Investments in new renewable energy capacity in 2017 reached USD 15.7 billion in Brazil, Mexico, Argentina and Chile alone.

However, a recurring theme affecting the majority of countries in the LAC region is the need for financing and the risk of energy supply disruptions. These two problems are mainly caused by the harmful effects of price volatility and by the adverse effects of climate change. Most countries are highly dependent on fossil fuels and

large-hydropower sites, which makes them very sensitive to price changes or severe weather conditions. This had led to an increase in the attractiveness of non-hydro renewable energy sources as a way to combat these problems. Of those non-hydro sources, bioenergy takes up the largest share of renewables, mainly due to the growth in capacity in Central America and Brazil. Wind energy, claiming the second largest share, has experienced rapid growth in the last decade rapidly growing from 0.5 GW in 2006 to almost 18 GW by the end of 2017.

The latest report by the Economic Commission for Latin America and the Caribbean (ELAC) on foreign direct investment showed that most investments in renewable energy between 2005 and 2017 in Latin America and the Caribbean were made in wind (32%) and solar (35%) technologies.

As of 2016, the region had a total installed solar PV capacity of 3.3 GW. Chile was the region's top installer, adding more than 0.7 GW in 2016 for a year-end total of 1.6 GW. However, in 2017, Brazil took the title away from Chile by installing more than 0.9 GW for a year-end total of 1.1 GW. Chile was still able to surpass 2 GW in 2017 by adding around 0.4 GW to its grid.

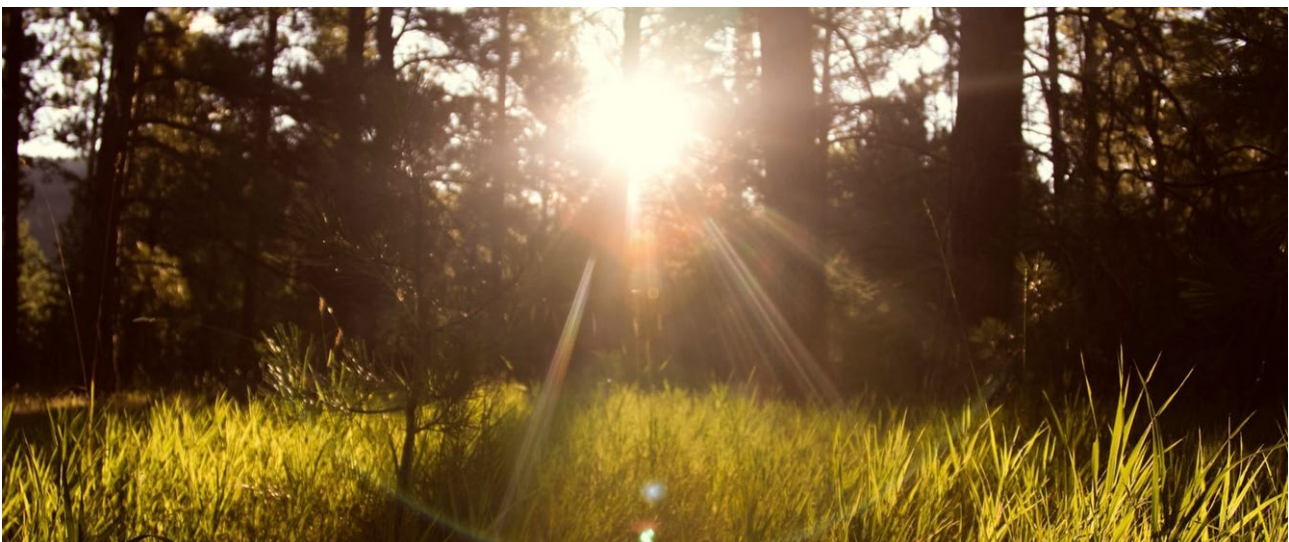
Another clear indication that the LAC region is moving towards renewable



energy is the fact that the total renewable installed capacity grew 48.6% during 2006-2016, from 151.6 GW to 225.4 GW, with Solar PV experiencing the fastest growth over the past five years. Installed solar PV capacity is still relatively small in the region but has grown significantly in the past few years, primarily in Brazil, Chile and Mexico.

In conclusion, Latin America and the Caribbean have shown promising results in recent years, further strengthening the region’s potential to continue to grow in

the near future. The growth of solar in the region depends mainly on policy changes and financial instruments in key markets, as well as the establishment of renewable-energy targets and actions systems that award long-term PPAs to developers. The constant improvement of these measures and tools, together with the increase in frequency of natural disasters, will continue to push Latin America to move away from fossil fuels and accelerate its transition towards renewable energy sources.



# SOURCES & LINKS

---

## INTRODUCTION

The Energy Solution Latin America Needs

<https://www.nytimes.com/2018/02/01/opinion/energy-grid-latin-america.html>

## A. BRAZIL

South America: Brazil

<https://www.cia.gov/library/publications/the-world-factbook/geos/br.html>

Brazil - Credit Rating

<https://tradingeconomics.com/brazil/rating>

Brazil - Electrical Power Matrix

<http://www2.aneel.gov.br/aplicacoes/capacidadebrasil/OperacaoCapacidadeBrasil.cfm>

UPDATE 1-Brazil economic activity up in 2017 for the first time in 4 years

<https://www.reuters.com/article/brazil-economy-activity/update-1-brazil-economic-activity-up-in-2017-for-the-first-time-in-4-years-idU5L2N1Q909T>

Brazil Economic Outlook

<https://www.bbvaresearch.com/wp-content/uploads/2017/07/Brazil-Economic-Outlook-3Q17.pdf>

Brazil Seeks To Join International Renewable Energy Agency

<https://cleantechica.com/2018/02/06/brazil-seeks-join-international-renewable-energy-agency/>

Brazil - Renewable Energy

<https://www.export.gov/article?id=Brazil-Renewable-Energy>

Brazil plans RE auctions for isolated regions

<https://www.pv-magazine.com/2018/03/09/brazil-plans-re-auctions-for-isolated-regions/>

Brazil awards 574 MW (AC) of solar in A-4 power auction

<https://www.pv-magazine.com/2017/12/18/brazil-awards-574-mw-ac-of-solar-in-a-4-power-auction/>

Brazil awards 806MW of Solar with its lowest ever tariff in the latest auction

<https://www.pv-tech.org/news/brazil-awards-806mw-of-solar-with-its-lowest-ever-tariff-in-latest-auction>

## B. MEXICO

Mexico to add 1,323 MW solar, 689 MW wind after 3rd tender

<https://renewablesnow.com/news/mexico-to-add-1323-mw-solar-689-mw-wind-after-3rd-tender-592119/>

Mexico - Country Overview

<https://tradingeconomics.com/mexico/>

Mexico Energy

<https://www.iea.org/publications/freepublications/publication/EnergyPoliciesBeyondIEACountriesMexico2017.pdf>

Mexico Emerges as a Leader for Distributed Solar in Latin America

<https://www.greentechmedia.com/articles/read/sun-shines-on-distributed-generation-in-mexico#gs.K9cTg8g>

Fotowatio secures financing for 342MW PV portfolio in Mexico

<https://www.pv-tech.org/news/fotowatio-secures-financing-for-342mw-pv-portfolio-in-mexico>

Engie wins rights to develop 687 MW renewable portfolio in Mexico

<http://solar.energy-business-review.com/news/engie-wins-rights-to-develop-687mw-renewable-portfolio-in-mexico-231117-5984899>

Alten and Cubico begin work on 350 MW solar park in central Mexico

<https://www.pv-magazine.com/2017/10/12/alten-and-cubico-begin-work-on-350-mw-solar-park-in-central-mexico/>

Mexico's PV capacity reached 460 MW at the end of June

<https://www.pv-magazine.com/2018/01/09/mexicos-pv-capacity-reached-460-mw-at-the-end-of-june/>

### C. ARGENTINA

UPDATE 1-Argentina grew 2.9 pct in 2017, avoids GDP warrant payment -source  
<https://www.reuters.com/article/argentina-economy/update-1-argentina-grew-2-9-pct-in-2017-avoids-gdp-warrant-payment-source-idU5L1N1PE1PB>

South America- Argentina  
<https://www.cia.gov/library/publications/the-world-factbook/geos/ar.html>

Energy consumption in Argentina  
<https://www.worlddata.info/america/argentina/energy-consumption.php>

Argentina Renewable Energy Policy Handbook 2017  
<http://www.arena-international.com/Uploads/2017/11/27/1/x/x/Free-Argentina-Renewable-Energy-Policy-Handbook-2017.pdf>

### D. CHILE

CHILE: IMF Cuts 2017 GDP Growth Estimate To 1.4%, From 1.6%  
<http://markets.businessinsider.com/news/interestrates/chile-imf-cuts-2017-gdp-growth-estimate-to-1-4-from-1-6-1003732981>

Global Electricity Consumption per capita  
<https://www.indexmundi.com/g/r.aspx?v=81000>

Chile's GDP growth to rise to 2.9% in 2018 and 2019: OECD  
<http://santiagotimes.cl/2018/02/26/chiles-gdp-growth-to-rise-to-2-9-in-2018-and-2019-oecd/>

The Chilean economy is set to be re energised thanks to upcoming elections  
<https://www.worldfinance.com/wealth-management/the-chilean-economy-is-set-to-be-reenergised-thanks-to-upcoming-elections>

Electricity Projects & Regulation 2017  
[https://www.carey.cl/download/newsalert/chile-reference\\_electricity-projects-regulation-latin-lawyer.pdf](https://www.carey.cl/download/newsalert/chile-reference_electricity-projects-regulation-latin-lawyer.pdf)

Capacidad Instalada - Chile  
<http://energiaabierta.cl/visualizaciones/capacidad-instalada/>

Chile's new national transmission network goes live  
<http://santiagotimes.cl/2017/11/24/chiles-new-national-transmission-network-goes-live/>

Chile's installed PV capacity tops 1,748 MW  
<https://www.pv-magazine.com/2017/10/03/chiles-installed-pv-capacity-tops-1748-mw/>

Chile's PV capacity surpasses 2 GW  
<https://www.pv-magazine.com/2018/02/05/chiles-pv-capacity-surpasses-2-gw/>

### E. COLOMBIA

GDP rises 2% in Colombia in forth quarter  
<https://countryeconomy.com/gdp/colombia>

South America: Colombia  
<https://www.cia.gov/library/publications/the-world-factbook/geos/co.html>

Colombia- Economic Indicators  
<https://tradingeconomics.com/colombia/indicators>

ABB hails success at Colombia solar PV plant  
<http://www.powerengineeringint.com/articles/2017/12/abb-hails-success-at-colombia-solar-pv-plant.html>

Celsia begins construction on second Colombia PV project  
<https://www.pv-tech.org/news/celsia-begins-construction-on-colombias-second-pv-project>

Celsia to build 80 MW solar project in Colombia  
<https://www.pv-magazine.com/2017/09/15/celsia-to-build-80-mw-solar-project-in-colombia/>

Latin America surpasses 4GW solar capacity - GTM  
<https://www.pv-tech.org/news/latin-america-surpasses-4gw-solar-capacity-gtm>

Celsia makes pact with indigenous peoples over 100MW Colombia solar project  
<https://www.pv-tech.org/news/celsia-makes-pact-with-indigenous-peoples-over-100mw-colombia-solar-project>

Colombia issues regulation for distributed solar generation  
<https://www.pv-magazine.com/2018/03/05/colombia-issues-regulation-for-solar-distributed-generation/>

Colombia may contract 1 GW of solar, wind in 2018 auction  
<https://www.pv-magazine.com/2018/01/24/colombia-may-contract-1-gw-of-solar-wind-in-2018-auction/>

Colombia to launch auction for large-scale solar and renewables  
<https://www.pv-magazine.com/2017/11/06/colombia-to-launch-auction-for-large-scale-solar-and-renewables/>

## F. CENTRAL AMERICA

Centroamérica y la República Dominicana: evolución económica en 2017 y perspectivas para 2018. Balance preliminar  
<https://www.cepal.org/es/publicaciones/43254-centroamerica-la-republica-dominicana-evolucion-economica-2017-perspectivas-2018>

Economic Snapshot for Central America & the Caribbean  
<https://www.focus-economics.com/regions/central-america>

Solar Energy  
[https://www.centralamericadata.com/es/article/home/Energa\\_solar\\_Nuevo\\_parque\\_de\\_50\\_MW](https://www.centralamericadata.com/es/article/home/Energa_solar_Nuevo_parque_de_50_MW)

Central America, optimizing the cost of energy through renewables  
<http://blogs.worldbank.org/latinamerica/central-america-optimizing-cost-energy-through-renewables>

RENEWABLE ENERGY EFFORTS SCALED-UP IN CENTRAL AMERICA  
<https://irenanewsroom.org/2017/07/09/renewable-energy-efforts-scaled-up-in-central-america/>

Renewable energy in Latin America: Central America  
<http://www.nortonrosefulbright.com/knowledge/publications/134765/renewable-energy-in-latin-america-central-america>

LATIN AMERICA & THE CARIBBEAN  
<http://2016.global-climatescope.org/en/region/lac/>

Guatemala launches renewables and efficiency focused national energy plan  
<http://newenergyevents.com/guatemala-launches-renewables-and-efficiency-focused-national-energy-plan/>

Panama Needs More Electricity  
[https://www.centralamericadata.com/en/article/home/Panama\\_Needs\\_More\\_Electricity](https://www.centralamericadata.com/en/article/home/Panama_Needs_More_Electricity)

Costa Rica's electricity generated by renewable energy for 300 days in 2017  
<https://www.independent.co.uk/news/world/americas/costa-rica-electricity-renewable-energy-300-days-2017-record-wind-hydro-solar-water-a8069111.html>

AES El Salvador invests in improving the electricity network  
<https://www.pv-magazine-latam.com/2018/03/22/aes-el-salvador-invierte-en-mejorar-la-red-electrica/>

### Current and Future projects Central America

Honduras inaugurates largest solar park in Latin America  
<http://kaltenbach-energy.com/en/honduras-inaugurates-largest-solar-park-in-latin-america/>

Honduras is the first nation with 10% solar in its electricity mix  
<https://www.pv-magazine.com/2017/01/30/honduras-first-country-in-the-world-with-10-of-solar-in-its-electricity-mix/>

Energía solar, el sector que atrae más inversiones  
<http://www.laprensa.hn/economia/1130179-410/energ%C3%ADa-solar-sector-atrae-inversiones-lufussa>

El Salvador to launch solar auction in December or January  
<https://www.pv-magazine.com/2017/10/19/el-salvador-to-launch-solar-auction-in-december-or-january/>

FinnFund to provide financing for 100MW PV portfolio in El Salvador  
<https://www.pv-tech.org/news/finnfund-to-provide-financing-for-100mw-pv-portfolio-in-el-salvador>

Enel begins 8MW PV solar plant for Nestle in Panama  
<https://www.pv-tech.org/news/enel-begin-8mw-pv-solar-plant-for-nestle-in-panama>

Panama reports 46 MW of new large-scale solar capacity for 2016  
<https://www.pv-magazine.com/2017/03/14/panama-reports-46-mw-of-new-large-scale-solar-capacity-for-2016/>

Neoen announces launch of operations for 101MW PV project in El Salvador  
<https://www.pv-tech.org/news/neoen-announces-launch-of-operations-for-101mw-pv-project-in-el-salvador>

Guatemala: Electricity Market Figures  
[https://www.centralamericadata.com/en/article/home/Guatemala\\_Electricity\\_Market\\_Figures](https://www.centralamericadata.com/en/article/home/Guatemala_Electricity_Market_Figures)

Nicaragua to deploy 11,000 PV systems in 2018  
<https://renewablesnow.com/news/nicaragua-to-deploy-11000-pv-systems-in-2018-596645/>

How Nicaragua is becoming a renewable energy paradise  
<https://www.irishtimes.com/news/world/how-nicaragua-is-becoming-a-renewable-energy-paradise-1.3284386>

Costa Rica switches on 5-MW PV park  
<https://renewablesnow.com/news/costa-rica-switches-on-5-mw-pv-park-583687/>

Costa Rica - Solar Energy Products  
<https://www.export.gov/article?id=Costa-Rica-Solar-Energy-Products>



**G. CARIBBEAN**

The World Bank in the Caribbean - Overview

<http://www.worldbank.org/en/country/caribbean/overview>

UAE-Caribbean Renewable Energy Fund announces major projects in five countries

<http://www.masdar.ae/en/media/detail/uae-caribbean-renewable-energy-fund-announces-major-projects-in-five-countr>

Caribbean Centre for Renewable Energy & Energy Efficiency

<http://www.ccreee.org/content/history-ccreee>

Cumulative installed capacity in CARICOM countries continues to grow

<https://www.power-technology.com/comment/cumulative-installed-capacity-caricom-countries-continues-grow/>

Renewable Capacity Statistics 2018

<http://www.irena.org/publications/2018/Mar/Renewable-Capacity-Statistics-2018>

Biomass for energy benefits poorest Dominicans, official says

<https://dominantoday.com/dr/poverty/2017/11/23/biomass-for-energy-benefits-poorest-dominicans-official-says/>

Emerald Solar Energy begins work on 25MW PV project in Dominican Republic

<https://www.pv-tech.org/news/emerald-solar-energy-begins-work-on-25mw-pv-project-in-dominican-republic>

Eight Rivers begins work on 37 MW PV plant in Jamaica

<https://www.pv-magazine.com/2017/12/18/eight-rivers-begins-work-on-37-mw-pv-plant-in-jamaica/>

The changing energy landscape in Latin America – and why it matters

<http://www.sandiegouniontribune.com/business/sd-fi-latinamerica-energy-20170605-story.html>

Caribbean Renewable Energy: Five Projects We're Watching in 2018

<http://newenergyevents.com/caribbean-renewable-energy-five-projects-were-watching-in-2018/>

The Caribbean Netherlands commissions 4.1 MW solar-plus-storage project

<https://www.pv-magazine.com/2017/11/15/the-caribbean-netherlands-commissions-4-1-mw-solar-plus-storage-project/>

Solar Energy Storage Resilience: On the Ground in Haiti

<https://solarmagazine.com/solar-energy-storage-resilience-on-the-ground-in-haiti/>

Haiti inaugurates the largest smart-grid in the Caribbean

<https://www.pv-magazine.com/2017/08/21/haiti-inaugurates-the-largest-smart-grid-in-the-caribbean/>

**GENERAL SUMMARY**

Brazil hits 1 GW solar milestone

<https://www.pv-magazine.com/2018/01/09/brazil-hits-1-gw-renewables-milestone/>

Chile's PV capacity surpasses 2 GW

<https://www.pv-magazine.com/2018/02/05/chiles-pv-capacity-surpasses-2-gw/>

Global Wind 2006 Report

<http://gwec.net/publications/global-wind-report-2/global-wind-2006-report/>

RENEWABLES 2017 GLOBAL STATUS REPORT

[http://www.ren21.net/wp-content/uploads/2017/06/17-8399\\_GSR\\_2017\\_Full\\_Report\\_0621\\_Opt.pdf](http://www.ren21.net/wp-content/uploads/2017/06/17-8399_GSR_2017_Full_Report_0621_Opt.pdf)

RENEWABLE ENERGY TENDERS AND COMMUNITY [EM]POWER[MENT] - Latin America and the Caribbean

<http://www.ren21.net/wp-content/uploads/2017/09/LAC-Report.pdf>

Foreign Direct Investment in Latin America and the Caribbean moves away from natural resources

[https://repositorio.cepal.org/bitstream/handle/11362/43423/S1800258\\_en.pdf?sequence=1](https://repositorio.cepal.org/bitstream/handle/11362/43423/S1800258_en.pdf?sequence=1)

How Important Is U.S. Financing for Latin Projects?

<http://advisor.thedialogue.org/wp-content/uploads/2018/03/LEA180316.pdf>

# SOLARPLAZA

UPDATED  
FACTS & FIGURES

---

**SOLAR ENERGY - LAC**  
**2018**

BRAZIL | MEXICO | ARGENTINA  
CHILE | COLOMBIA  
CENTRAL AMERICA | CARIBBEAN



**EL FUTURO SOLAR**  
**ARGENTINA**

8 - 9 MAY 2018 / BUENOS AIRES

**UNLOCKING SOLAR**  
**CAPITAL LAC**

28 - 29 JUNE 2018 / MIAMI, USA