



CLIMATE SCOPE 2012

Assessing the Climate for
Climate Investing in **Latin America
and the Caribbean**

 **MIF**
Multilateral Investment Fund
Member of the IDB Group

Bloomberg
NEW ENERGY FINANCE

THE MULTILATERAL INVESTMENT FUND

Established in 1993, as part of the Inter-American Development Bank (IDB) Group, the Multilateral Investment Fund (MIF) is funded by 39 donors and supports private sector-led development benefitting the poor in Latin America and the Caribbean – their businesses, their farms, and their households. The aim is to give poor and low-income populations the tools to boost their incomes: access to markets and the skills to compete in those markets, access to finance, and access to basic services, including green technology.

BLOOMBERG NEW ENERGY FINANCE

Bloomberg New Energy Finance (BNEF) is the world's leading independent provider of news, data, research and analysis to decision makers in renewable energy, energy smart technologies, carbon markets, carbon capture and storage, and nuclear power. The firm has staff of over 150, based in London, Washington D.C., New York, São Paulo, Tokyo, Beijing, New Delhi, Singapore, Hong Kong, Sydney, Cape Town, and Zurich. BNEF serves the world's leading financial institutions, multinational corporations and governments through its research, consulting and database services. New Energy Finance Limited was founded as an independent company in London in 2004. The firm was acquired by Bloomberg L.P. in December 2009. Its services and products are now owned and distributed by Bloomberg Finance L.P.



CLIMATESCOPE 2012

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PREFACE FROM MULTILATERAL INVESTMENT FUND

NANCY LEE

The Multilateral Investment Fund is proud to present the first *Climatescope*, developed in partnership with Bloomberg New Energy Finance, the leading climate investment experts. This annual report will objectively assess the “investment climate for climate investment” across the Latin American and Caribbean (LAC) region.

This index will be a critical tool for investors and entrepreneurs seeking the best places to pursue opportunities in renewable energy and energy efficiency, as well as in the creation of value from the sustainable use of “natural capital”: forests, watersheds and waterways, wetlands and grasslands, beaches, fishing areas, and biodiversity. Lenders can harness these data to identify promising new areas to support green lending. Governments intent on creating supportive enabling environments for climate investment will find the *Climatescope* a helpful tool in guiding their policy choices.

Latin America and the Caribbean are exceptionally well endowed in natural capital. At the same time governments, businesses, civil society, and individuals are increasingly focused on the very real and tangible threats of climate change, deforestation, and biodiversity loss. Yet, many remain excluded from the benefits of natural resources and natural capital. Millions of people and small businesses still lack access to affordable and reliable energy. Though hydro power resources have been tapped in much of the region, the promise of solar, wind, geothermal, and other sources of clean energy has yet to be realized for most citizens. Better, sustainable use of natural capital can provide important income sources for many at the base of the pyramid and in remote locations.

Established in 1993 as part of the IDB Group, the Multilateral Investment Fund supports economic growth and poverty reduction through private sector-led development projects that benefit poor and low income populations – their businesses, their farms, and their households. During the nearly 20 years that the MIF has been supporting sustainable private sector development, we have seen important innovations coming from the base of the pyramid. Whether supporting açai producers with venture capital, financing small-scale renewable energy start-ups, promoting green microfinance, helping poor households finance and install solar panels, or helping small businesses green their operations, the MIF has worked to champion some of the best ideas from or for small actors.

If you would like more information on the MIF and our Environment and Clean Energy team, visit www.fomin.org. There, you will learn about our projects and programs and access an interactive version of the *Climatescope*, where parameter weights can be adjusted to fit the needs of the user.

I very much hope that you find *Climatescope* a useful public good and a groundbreaking tool in the pursuit of cleaner energy and natural capital solutions to support development in Latin America and the Caribbean.



NANCY LEE
General Manager, Multilateral Investments Fund

PREFACE FROM BLOOMBERG NEW ENERGY FINANCE

MICHAEL LIEBREICH

Bloomberg New Energy Finance is proud to partner with the Multilateral Investment Fund of the Inter-American Development Bank to produce the *Climatescope*, a groundbreaking effort to document low-carbon energy investment activity and opportunities in the 26 countries of the Latin America and Caribbean (LAC) region.

Our firm is the world's leading provider of data, research, and market intelligence to investors, manufacturers, and policy-makers in the burgeoning clean energy and water sectors. In 2011, no less than \$280bn in new capital flowed to wind, solar, biofuels, energy efficiency and other low-carbon energy technologies and projects. By the end of the year we recorded the one trillionth dollar invested in clean energy since we began counting eight years ago. Much of the action has been in Europe, which has led the world in the installation of photovoltaic systems, the US, and China, today the world's biggest producers of both wind turbines and photovoltaic modules.

For its part, the Latin American and Caribbean region is playing an increasingly important role in the emerging clean energy industry. Thanks to Brazil, Colombia, and Argentina, South America is already the world's second biggest producer of bioethanol and biodiesel. In addition, Latin America could add over eight gigawatts of new wind power capacity over the next three years. The nations of Central America are poised to add 130 megawatts of geothermal this year alone. Mexico, Chile, Peru, and others are moving swiftly to facilitate solar deployment.

Still, given the extraordinary natural resources available and the rapidly growing demand for energy, Latin America and the Caribbean remain fundamentally under-invested to date. In 2011 the region attracted less than 5% of all funds invested in clean energy worldwide. This is set to change. The region is home to exceptional solar, wind, hydro, and biomass resources with many of its countries experiencing strong economic growth. LAC stands to benefit from clean energy equipment cost reductions over the past three years, which today make these technologies more competitive than ever with fossil fuels. Overcapacity among equipment manufacturers, along with uncertainty about some of their traditional markets, has meant players from Europe, Asia, and the US are now clamoring for opportunities in the Latin America and Caribbean region.

What this means for local policy-makers is that spurring the kind of clean energy deployment seen elsewhere can require relatively little, if anything, in the way of direct subsidies. Nonetheless, some basic support will be needed to foster low-carbon energy growth – availability of private capital, relevant manufacturing and service value chains, development of skills and capabilities, and above all stable, transparent and reliable policy structures.

Climatescope seeks to undertake the first comprehensive assessment of the current state of play for each of these critical factors in the Latin America and Caribbean region. The primary goal is to highlight those countries which have made the most progress to date, though we have also identified others with work to do. The analysis is highly quantitative, taking into account no fewer than 30 indicators, but it also reflects the judgment of our firm's expertise and that of outside experts with whom we consulted.

We anticipate this report will heighten awareness of where the Latin America and Caribbean region stands today, and what progress must be achieved for it to play its full role in addressing the specter of climate change, while at the same time allowing millions to enjoy the benefits of abundant energy for the first time. In more concrete terms, we expect the *Climatescope* to be used as a handbook for manufacturers and financiers seeking to better understand this region's opportunities for investment.

The eyes of the world will be very much on Latin America this year, with Brazil hosting Rio+20, the United Nations Conference on Sustainable Development marking the 20th anniversary of the first Earth Summit. As a proud member of the UN's Sustainable Energy for All Committee, it is my sincere hope that the Latin America and Caribbean region can lead the way on these critically important issues during this year and beyond.

I am already looking forward to working on next year's updated *Climatescope*, in which I am sure we will be reporting on significant further progress in this most dynamic of regions.



MICHAEL LIEBREICH
Chief Executive and Founder, Bloomberg New Energy Finance

EXECUTIVE SUMMARY

Climatescope 2012 is a report and index developed as a collaborative effort between the Multilateral Investment Fund of the Inter-American Development Bank Group and Bloomberg New Energy Finance. The study assesses the investment climate for climate-related investment in Latin America and the Caribbean.

It profiles 26 countries in the region and evaluates their ability to attract capital for low-carbon energy sources while building a greener economy. All countries profiled are borrowing members of the Inter-American Development Bank (IDB).

IDB BORROWING MEMBERS

CARIBBEAN

Bahamas
Barbados
Dominican Republic
Guyana
Haiti
Jamaica
Suriname
Trinidad and Tobago

CENTRAL AMERICA & MEXICO

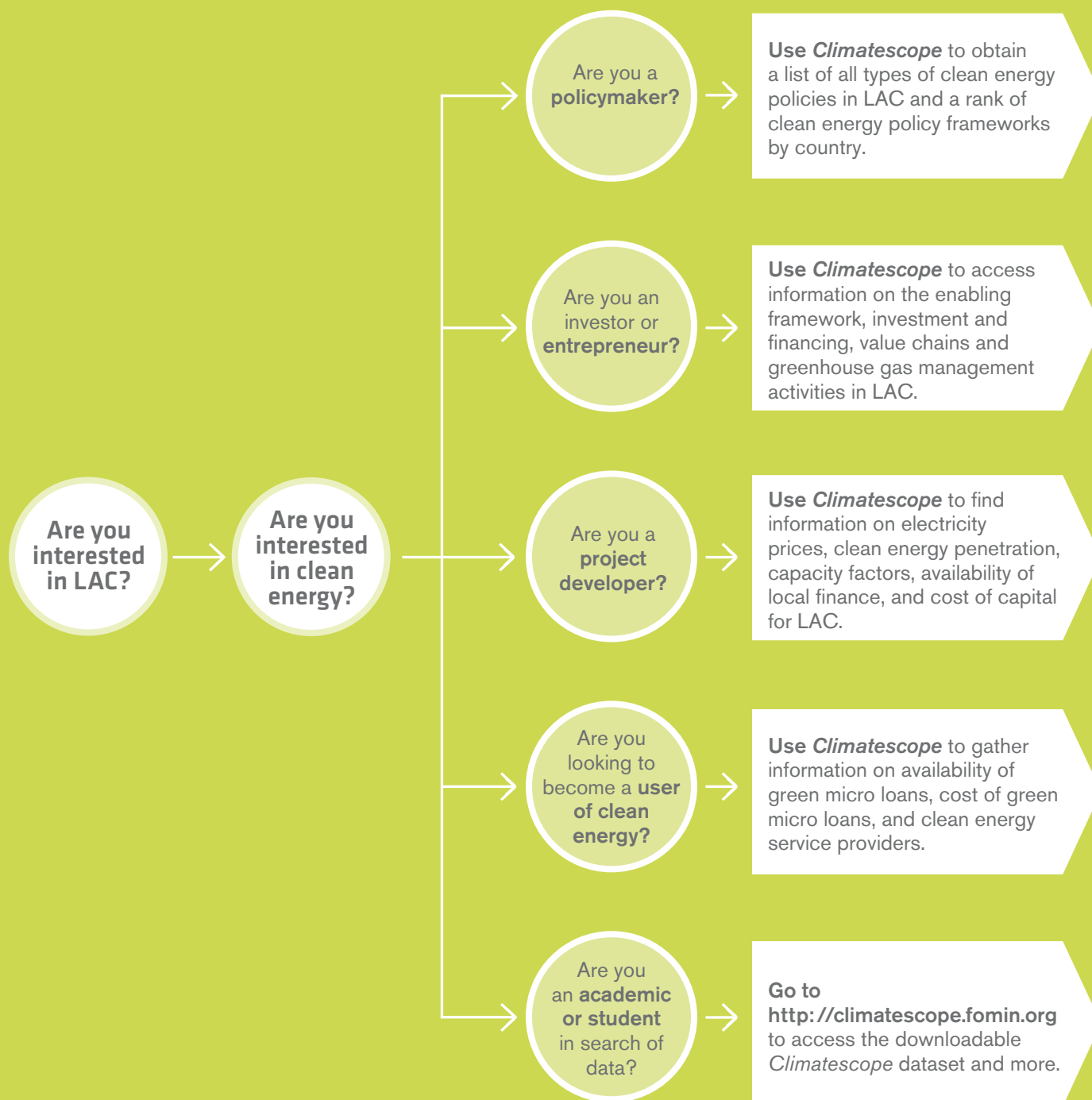
Belize
Costa Rica
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama

SOUTH AMERICA

Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Paraguay
Peru
Uruguay
Venezuela

WHAT'S YOUR PERSPECTIVE?

Assessing the Climate for Climate Investing in Latin America and the Caribbean



To assign each country an overall score, *Climatescope* examines the following four overarching but interrelated parameters:

- I. **Enabling Framework** – The existing policies, power market structures and levels of clean energy¹ capacity online in a given country, as well as other market-size related factors.
- II. **Clean Energy Investment and Climate Financing** – Funds deployed in support of clean energy, plus the availability and cost of local capital such as microfinance.
- III. **Low-Carbon Business and Clean Energy Value Chains** – The availability of local manufacturing and supply chains for clean energy goods, services and financing.
- IV. **Greenhouse Gas Management Activities** – The extent of action taken and projects developed under the United Nations Clean Development Mechanism (CDM).

These parameters are supported by a series of 30 indicators based on data captured by Bloomberg New Energy Finance through first-hand research, consultation of publicly available sources and discussions with experts. Together, these indicators and their corresponding parameters form a holistic picture of a particular country's climate for climate investment. The accompanying web tool available at <http://climatescope.fomin.org> allows users to adjust the relative importance of the four parameters, in essence enabling users to customize the *Climatescope's* underlying methodology for their own purposes.

Climatescope is intended as a go-to guide for investors, developers and entrepreneurs looking to commit funds to low-carbon energy projects or equipment manufacturing plants in Latin America and the Caribbean. For policy-makers, it is intended as a yardstick against which to benchmark current achievements and set future goals.

In 2011, no less than \$280bn in new investment flowed to new clean energy projects and companies worldwide, with the bulk of that deployed in Europe, the US and China. For its part, Latin America attracted less than 5% of the global total. So it should come as little surprise that the overall *Climatescope* results highlight considerable room for improvement for countries seeking to attract more capital for their local low-carbon energy sectors and to install more clean power capacity. Still, the results demonstrate important momentum in the region and the massive

opportunity ahead. With its exceptional natural resources, solid economic growth, and a general desire for improved energy security among its nations, the region is now poised for major clean energy growth.

KEY FINDINGS

- Brazil, Nicaragua and Panama, in descending order, received the highest *Climatescope* scores thanks to a combination of supportive local policies, clean energy investment and other factors. But they were not the only countries to shine in the survey. Others were particularly strong in different areas such as policy, market structures, microfinance organizations, or carbon project activity.
- The overall *Climatescope* results highlight considerable room for improvement for countries seeking to attract more capital for their local low-carbon energy sectors and to install more clean power capacity. Better clean energy policies are clearly a critical part of achieving this goal. There is, however, no 'silver bullet' to improving a country's overall *Climatescope* score. Rather, a series of changes are necessary to make a marked improvement and, in turn, attract substantial additional low-carbon energy investment.
- There are at least 80 clean energy policies in place or in the late planning stage in Latin America and the Caribbean. For the most part, these represent energy market mechanisms or tax-based incentives. Trinidad & Tobago is the only country with a carbon-market policy in place. Brazil and the Dominican Republic are the only nations offering clean energy equity finance policy support.
- 8% of the 301GW power capacity installed today in Latin America and the Caribbean is represented by renewable sources such as biomass and waste (10.2GW), small hydro (8.4GW), wind (2.4GW), geothermal (1.5GW) and solar (1.5MW). Compared with its peers, Panama has significantly increased its renewable share of installed power capacity with a year-on-year growth rate of 31% from 2006 to 2010.
- Latin America and the Caribbean possess two very attractive characteristics for investors seeking to develop new clean energy generation: high electricity prices and strong power-demand growth rates. Retail prices averaged \$0.14/kWh across the region in 2010, with Jamaica (\$0.30/kWh), Barbados (\$0.26/kWh) and Belize (\$0.23/kWh) having particularly high rates. Such prices are

1. Employing a definition long used by Bloomberg New Energy Finance, this study does not consider large hydro (>50MW) to be a low-carbon source of power generation.

often a source of discontent for end-users but they are good news for clean energy developers looking to build cost-competitive projects. Moreover, thanks to today's unprecedentedly low clean energy equipment prices, new capacity can be installed in some of these nations profitably – without the benefit of subsidies.

- Microfinance has emerged as a significant lever to help expand clean energy access to the energy poor, with close to 34m people in the Latin America and Caribbean region currently having no meaningful grid access. There are 71 microfinance organizations operating in Latin America and the Caribbean offering some sort of green financial product. Nicaragua distinguishes itself as having the highest level of green microfinance penetration. In all, \$75m in green micro loans have been disbursed by green microfinance organizations operating in Latin America and the Caribbean to date, granting some 44,000 low-income borrowers access to clean and cheap renewable energy.
- The region's largest economies are the leaders in terms of active domestic players involved in clean energy value chains, ranging from ready financial institutions, to equipment makers, to project developers and installers. Brazil is the only country to boast a complete value chain for at least two clean energy technologies (biofuels and biomass & waste). Mexico is on the road to becoming the first country with complete value chains for wind and solar. While smaller nations are unlikely to host complete value chains, they could play key roles in fulfilling missing links by producing specialized equipment.
- Bloomberg New Energy Finance recorded a cumulative \$90bn of clean energy investment in Latin America and the Caribbean between 2006 and 2011. Brazil attracted close to 80% of the total funds committed. However, the *Climatescope* does not rank countries on absolute numbers. Rather, countries were ordered on the significance of clean energy investments to the overall economy. Nonetheless, Brazil was second-highest in this category behind only Nicaragua. The latter and other Central American nations emerge as champions, scoring the highest points for amount invested in clean energy relative to economic activity. Central America – particularly Guatemala, Costa Rica and Honduras – also displayed the highest 5-year compounded annual economic growth rate for investments in clean energy.

- Most Clean Development Mechanism (CDM) projects in Latin America and the Caribbean are located in Brazil and Mexico. As a consequence, both countries received the highest score for the parameter analyzing greenhouse gas management activities in the region. A presence of multinational corporations in these nations is most likely the reason. For its part, Panama performed better than its peers in terms of its carbon offset project development, a measure of how successful a country has been in abating its emissions by capitalizing on the sale of carbon credits. Clearly, a new international accord on carbon, stronger local policies, or some combination of both will be required to spur greater activity in this front.

REPORT ROADMAP

- The Methodology section of the report details the sources used, the data collection process, the scoring system and the indicator levelization process.
- The Score Summaries section presents the overall *Climatescope* scores and rankings for the 26 Latin American and Caribbean countries assessed in this report. It also provides analysis and country rankings for individual parameters.
- The Country Profile section contains 26 individual country summaries and analyses of how each nation scored.
- The report is accompanied by a fully interactive online tool available at <http://climatescope.fomin.org>, which allows users to adjust various assumptions in the *Climatescope* model to see how countries score under different scenarios.
- Case Studies highlighting small initiatives with large impacts in each country can also be found online. The website makes all the data behind the report available for download in aggregate form.

METHODOLOGY

The *Climatescope* index comprises 30 indicators categorized into four broad but interrelated parameters.

The third most populated city in Mexico, Monterrey lies just North of the Sierra Madre Oriental mountain range. The range is distinguished by its dense rows of arcing ridges. It stretches south, parallel the Gulf Coast for hundreds of miles.

OVERVIEW

The *Climatescope* is an index developed by the Multilateral Investment Fund (MIF) of the Inter-American Development Bank (IDB) in partnership with Bloomberg New Energy Finance (BNEF) to measure the current state of clean energy and climate-related business development in 26 countries in Latin America and the Caribbean. Apart from measuring achievements to date, it assesses the relative ability of each nation to attract low-carbon energy investments. The *Climatescope* index comprises 30 indicators, qualitative and quantitative, categorized into four broad but interrelated parameters: (I) Enabling Framework; (II) Clean Energy Investment and Climate Finance; (III) Low-Carbon Business and Clean Energy Value Chains; and (IV) Greenhouse Gas Management Activities. Each parameter has a weighted contribution to a country's overall score (see illustration on the following page). A parameter consists of a series of indicators which are also weighted based on their contribution to the parameter score and, in turn, the overall *Climatescope*. Indicators comprising Parameters I and II are further grouped into categories to simplify the analysis. The table on page 10 summarizes the relative weights for each parameter's overall contribution to the index score as well as the categories and indicators comprising each parameter.

The Enabling Framework parameter, weighted at 40% of the overall *Climatescope* score, demonstrates the investment climate in each country. It takes into account policies in place, energy market conditions, as well as market attractiveness and growth potential. The Clean Energy Investment & Climate Financing parameter quantifies clean energy investments of all types including private equity injections, large-scale project financings, public stock exchange offerings, grants, and green micro loans. Weighted at 30%, this parameter also maps out locally available sources of funds and borrowing conditions. The Low-Carbon Business and Clean Energy Value Chain parameter (10% weighting) takes into account the availability of local manufacturing and supply chains for clean energy goods, services and financing. Finally, the Greenhouse Gas Management Activities parameter (20% weighting) measures the extent of actions taken and projects developed under the United Nations Clean Development Mechanism (CDM) or voluntary initiatives by companies and governments to reduce emissions.

In all, these four parameters cover 30 unique indicators. Data for these were drawn from a variety of primary sources including legal texts, government websites, press reports, interviews, and surveys as well as secondary sources including the proprietary Bloomberg New Energy Finance Industry Intelligence database of clean energy investments, projects, service providers, policies and value chains.

Each indicator reflects one or more data inputs and has a different order of magnitude. In an effort to take into account these variations and to ensure the survey was not biased in favor of any one player, certain indicators were 'levelized' in order to make comparison across the board possible. Each indicator was scored using one of the following three approaches:

- **Indexing** – the *Climatescope* index is based entirely on a 0–5 scoring system, with 5 representing the highest possible score. Using the indexing approach, the country with the maximum output for a given indicator, after levelization in most cases, received the highest score in the index (5). All other countries' outputs were mapped relative to the maximum score. This approach was employed on quantitative indicators such as clean energy installed capacity, clean energy investments and electrification rate.
- **Tiering** – in other cases, country indicator scores were tiered into predefined quintiles. For example, in the case of power market structure indicator, tiering was used and countries were placed in different quintiles depending on the openness for new power generation players. This methodology is better suited than indexing for qualitative assessments such as rating the ease of carbon offset project development. It was also used when the quantitative outputs are based on limited data.
- **Simple counting** – some indicators were simply binary and thus countable. In such cases, the country either received a 0 or a 5 score. For instance, one indicator simply sought to take into account whether countries have a rural electrification program using clean energy sources in place. If they do, they receive a 5 score. If not, they receive a 0 score.

Each parameter, along with its associated indicators, is explained in greater detail on the following page.

OVERVIEW

PARAMETER	WEIGHT	CATEGORY	WEIGHT	INDICATOR	NET WEIGHT	
I. ENABLING FRAMEWORK (pp. 11-13)	40%	Policy & Regulation	40%	Clean energy policies	9.6%	
				Power sector structure	4.8%	
				Clean energy rural electrification	1.6%	
		Clean Energy Penetration	40%		Clean energy installed capacity	2.4%
					Growth rate of installed capacity	3.2%
					Clean energy electricity generation	2.4%
					Growth rate of electricity generation	3.2%
					Biofuels production	1.6%
					Growth rate biofuels production	3.2%
		Price Attractiveness	10%		Average retail electricity prices	2.0%
					Average electricity spot prices*	2.0%
Market Size Expectations	10%		Growth rate of power demand	2.0%		
			Electrification rate	2.0%		
II. CLEAN ENERGY INVESTMENT & CLIMATE FINANCING (pp. 13-15)	30%	Amount Invested	45%	Clean energy investments	6.8%	
				Growth rate of clean energy investments	6.8%	
		Investment Type	N/A		Asset finance investments	N/A
					Corporate finance investments	N/A
					VC/PE investments	N/A
					Small distributed scale	N/A
		Fund Sources	20%		Loans, grants, grant programs	3.0%
					Local investments	3.0%
		Green Microfinance	25%		Number of Green MFI	3.8%
					Green micro-loans	1.9%
					Green micro-borrowers	1.9%
Cost of Debt	10%		Average cost of green micro debt	0.3%		
			Sovereign cost of debt	2.7%		
III. LOW-CARBON BUSINESS & CLEAN ENERGY VALUE CHAINS (pp. 15-16)	10%	Value Chain	100%	Financial institutions in clean energy	2.5%	
				Value chains by clean energy sector	5.0%	
				Clean energy service providers	2.5%	
IV. GREEN HOUSE GAS MANAGEMENT ACTIVITIES (p. 17)	20%	GHG's	100%	Offset project volume	8.0%	
				CDM risk	3.0%	
				CDM validation presence	3.0%	
				Companies efforts – emissions	3.0%	
				Companies efforts – efficiency	3.0%	
				Offset development – costs	N/A	
				Offset development – difficulty	N/A	

*For countries without a wholesale power market no score was given to the average electricity spot price indicator. Consequently the average retail electricity price indicator net weight changed from 2% to 4% for those countries. Countries without a wholesale power market include: Bahamas, Barbados, Belize, Bolivia, Costa Rica, Dominican Republic, Guyana, Haiti, Honduras, Jamaica, Mexico, Paraguay, Suriname, Trinidad & Tobago, and Venezuela.

Note: N/A refers to indicators that were not used in the overall *Climatescope* calculation.

ENABLING FRAMEWORK

Parameter I

In the *Climatescope* index, the enabling framework portrays the basic policy, structure and market conditions in a given country. This framework is fundamental to virtually any stakeholder looking to make an investment, start a business, develop a project, or craft a policy related to a given nation's low-carbon economy. Given its universal importance this parameter accounts for 40% of a country's overall *Climatescope* score.

This parameter comprises 13 indicators which were subdivided into four categories:

- Policy & Regulation
- Clean Energy Penetration
- Price Attractiveness
- Market Size Expectations.

POLICY & REGULATION

Policy mechanisms have helped spur major clean energy development in Western Europe, the United States and other parts of the world. The potential impact of low-carbon policies on clean energy development in Latin America and the Caribbean is crucial to understanding the environment for climate-related investment in the region and forecasting growth. For this reason, the policy and regulation category of Parameter I encompasses three indicators: clean energy policies, power sector structure and clean energy rural electrification.

The clean energy policy indicator accounted for 60% of a country's Parameter I score and 9.6% of its overall *Climatescope* score. It received a heavier weighting than any other indicator to reflect how important clean energy-specific policies are to clean energy development.

To compile the clean energy policy indicator score, Bloomberg New Energy Finance first undertook a comprehensive search for relevant policies in the Latin America and Caribbean region, examining primary source documents such as legislation and conducting interviews with local policymakers for input. Ultimately, a database of around 80 local policies was compiled.

This database was then presented to six esteemed policy experts from the public and private sectors with a balanced mix of local and foreign expertise. The panel worked collaboratively with Bloomberg New Energy

Finance to develop the fairest possible method for scoring every nation's policy regime. The panel consisted of:

- **Marcelo de Andrade**, Director of Business Development for Latin America at Earth Capital Partners
- **Douglas Arent**, Executive Director of the Joint Institute for Strategic Energy Analysis at the United States National Renewables Energy Laboratory
- **Morgan Bazilian**, Special Advisor to the Director-General on International Energy and Climate Policy at the United Nations Industrial Development Organization
- **Nicola Borregaard**, Head of the Energy and Climate Change Unit at Fundación Chile
- **Ben Caldecott**, Head of European Policy at Climate Change Capital
- **Sarah Ladislaw**, former Senior Fellow in the Energy and National Security Program at the Center for Strategic and International Studies.

The panel determined it was important to rate countries' policy regimes on two axes: level of ambition and level of potential effectiveness. The group also decided that power-generation policy regimes should be assessed separately from those intended to foster biofuels use. For countries without natural resources to produce biofuels, only power-generation policies would be analyzed.

Ultimately, the panel employed the tiering approach to rate, on a 0–5 scale, the ambition and effectiveness of both power-generation and biofuels policies in eight countries. Eighteen nations only had their power-generation policies rated. Four of the panelists along with Bloomberg New Energy Finance Senior Policy Analyst, Anna Czajkowska, cast votes for each country. These votes were then averaged to reach a single clean energy policy indicator score per nation. It is worth noting that not one of the 26 countries received a mark of 5 for this indicator. Brazil scored highest with a 3.9.

The methodology for the power sector structure indicator followed a somewhat similar approach due to its qualitative nature. It had a 30% weighting on the Parameter I score and 4.8% net weight to the overall *Climatescope* score. For this indicator, a separate panel of four experts, two internal and two external, was convened to devise a

methodology for assessing the openness of each country's power market to new generation from clean sources. Panel participants included:

- **A. J Goulding**, President of London Economics LLC
- **Michael Lawn**, Head of Power Market Insight at Bloomberg New Energy Finance
- **Alejandro Peraza**, Director General of Electricity and Renewable Energies for Mexico's Comisión Reguladora de Energía
- **Arnaldo Vieira de Carvalho**, Senior Energy Specialist at the Inter-American Development Bank.

The panelists worked with Bloomberg New Energy Finance to determine that countries should be judged based on a set of 10 binary questions about the nature of the local power market structure. Each question received a score of 0 or 0.5 points. A country's final score was compiled by totaling these points. In theory, a nation could have scored a perfect 5.0, though none did. The 10 questions and score values are summarized in the table below.

The clean energy rural electrification indicator was the third policy-related indicator to contribute to Parameter I. It was weighted at 10% of the parameter score and 1.6% of the overall *Climatescope* score. It simply sought to take into account countries with programs in place to expand energy access for the rural poor using renewable sources.

Data collected for this indicator was based on both primary and secondary sources ranging from government websites, program websites, official documents, news articles, press releases and interviews. The aim was not to assess the

impact of a given national program, but simply to identify if such energy access programs existed and if it had a clean energy component to it. As such, Bloomberg New Energy Finance employed a binary method for this indicator: countries with relevant programs in place scored 1; those without such programs scored 0.

CLEAN ENERGY PENETRATION

The clean energy penetration category of Parameter I aims to quantify the share of clean energy installed capacity, share of actual renewable generation and biofuels production as well as the respective growth rates of all three. Combined, these six indicators comprise 40% of the weight of Parameter I and 16% of the overall *Climatescope* index. All data for these indicators was derived from primary sources including websites and publications from energy ministries, power market regulators, system operators, or utilities. In the case of three countries (the Bahamas, Haiti, and Guyana) where local data was unavailable, Bloomberg New Energy Finance made best estimates based on disclosed data from national energy policies, utilities or the World Bank. All growth rate figures represent expansion over the last two years. Data for 2010 was used for countries that did not have 2011 data available. Growth rates for clean energy installed capacity represent the expansion over 2010–11 or 2009–10 when the latest data was not available.

PRICE ATTRACTIVENESS

The indicators in the price attractiveness and market size expectations category are all quantitative and based on primary source research from energy ministries, power sector regulators and local utilities. None of them needed to be levelized; countries were scored using the index approach.

SCORING FORMULA FOR PARAMETER I

QUESTIONS	IF YES	IF NO
1. IS THIS A LIBERALIZED POWER MARKET?	0.5	0
2. DOES A PUBLIC OR PRIVATE VERTICALLY INTEGRATED MONOPOLY UTILITY CONTROL THE MARKET?	0	0.5
3. IS THERE A FUNCTIONING COMPETITIVE WHOLESALE GENERATION MARKET IN PLACE?	0.5	0
4. IS THERE AN INDEPENDENT POWER MARKET REGULATOR?	0.5	0
5. HAVE VERTICALLY INTEGRATED UTILITIES BEEN UNBUNDLED?	0.5	0
6. HAVE ASSETS BEEN PRIVATIZED?	0.5	0
7. ARE THERE SIGNIFICANT BARRIERS TO PRIVATE SECTOR PARTICIPATION IN GENERATION?	0	0.5
8. IS THERE AN INDEPENDENT SYSTEM OPERATOR?	0.5	0
9. IS THERE A FUNCTIONING POWER EXCHANGE?	0.5	0
10. ARE END-USER ELECTRICITY TARIFFS SUBSIDIZED?	0	0.5

Generally speaking, high electricity prices are a positive factor for the potential development of clean energy capacity in a country. This is because while leveled costs of electricity from wind, solar and other technologies have dropped in recent years, they can still often be higher than those of conventional power generation. Thus the best opportunities for developers can often be found in tight electricity markets – places where consumers can, for instance, install a residential photovoltaic system to offset high-priced power from a hub-and-spoke transmission network.

For this reason, the countries with the highest prices retail and wholesale electricity prices in the region received the highest mark of 5 with all others benchmarked against them. Jamaica, Barbados and Belize present the highest average retail electricity rates. Panama, El Salvador and Nicaragua host the region's highest spot prices. Only 11 countries in the region have functioning wholesale power markets and thus publicly available spot prices. The price attractiveness of the 15 countries without wholesale markets was judged solely on their retail electricity prices.

CLEAN ENERGY INVESTMENT & CLIMATE FINANCING

Parameter II

Few investors are comfortable with being the first to invest in a new technology or new region.

Thus to properly assess a country's ability to attract future low-carbon energy investment, it is important to assess its achievements to date. The Clean Energy Investment and Climate Financing parameter takes into account prior investment activity and lays out financing conditions for future commitments. In all, this parameter comprises nine indicators grouped into five categories:

- Amount Invested
- Investment Type
- Fund Sources
- Green Microfinance
- Cost of Debt

Each indicator was assigned a weight relative to its respective importance to the category; likewise each category was assigned a weight relative to its importance to the overall parameter score (see table on page 14).

MARKET SIZE EXPECTATIONS

Clean energy deployment also stands to benefit from markets that are poised to grow, which is why the *Climatescope* index includes the market size expectation category in Parameter I. Low electrification rates generally offer more opportunity for clean energy deployment as distributed sources of power can be more economic and sustainable than conventional generation which requires long transmission lines. Thus, for the electrification indicator, the lowest rate of electrification received a score of 5, representing the highest mark. Haiti, Honduras and Nicaragua have the region's lowest electrification rates and thus received the highest marks for this category.

Latin America and Caribbean economies have been growing at a trot for the last five years, a positive sign for the growth of clean energy sector since power demand growth usually follows economic growth. The most opportune markets for expansion are those with the highest rate for power demand growth. Thus, for the power demand growth indicators, countries with the highest growth rates (Paraguay, Suriname and Argentina) scored a 5, the highest mark.

AMOUNT INVESTED & INVESTMENT TYPE

Total amount invested in clean energy is the primary category in Parameter II, with a weighting of 45%. The investment type category is not given a parameter weight since all four indicators comprising this category have been aggregated into the total cumulative clean energy investment figure. Data points underlying these indicators are available online for the purpose of outside analysis¹.

For the total clean energy investment indicator, Bloomberg New Energy Finance primarily relied on its own proprietary database which tracks low-carbon investment worldwide. The total represents a tally of a given country's new financial investments, merger & acquisition activity, and small distributed-scale capacity additions. New financial investments encompass: new-build asset financing of renewable energy projects; and new equity raised on the public markets or new investment from the venture capital and private equity community raised by pure-play clean energy companies or by partial clean energy companies where the proceeds are earmarked for clean energy purposes only.

1. For a comprehensive list of indicators and the raw data behind each indicator please download the "source data" file at <http://climatescope.fomin.org>

Total acquisitions comprise: asset acquisitions and refinancing of renewable energy projects; investor exits through public market transactions of pure-play clean energy companies; private equity buy-outs of pure-play clean energy companies; and corporate merger & acquisition transactions where the target company is a pure-play clean energy company.

This total clean energy investment indicator accounts for cumulative commitments from 2006 to 2011. Similarly, the growth rate for clean energy investment indicator takes into account the same six-year period and is based on compound annual growth rates. Investment commitments follow different orders of magnitude because of the variation in the size of all 26 Latin American and Caribbean economies. Thus, we ranked each country for this indicator based on the value of total clean energy investments as a percentage of GDP in current US dollars to ensure standardization. Once investments were benchmarked by the size of the economy, countries were ranked using the tiering methodology discussed above.

FUND SOURCES

The sources of funds category contributed to 20% of the Parameter II score. Its two unique indicators – loan, grants and grant programs and local investment by local players – each contributed to half of the parameter weight and 3% apiece to the overall *Climatescope* score.

For the two indicators in the fund sources category, a similar methodology was employed to track commitments which included private and public loans, grants and grant programs committed to each country in the region. Standardization was achieved by comparing fund source commitments to GDP. The score for the indicator analyzing local commitments by local players for local projects was derived by filtering the data for total clean energy investments to derive the dollar amount committed by local players for local projects as a percentage of total clean energy investment.

SCORING FORMULA FOR PARAMETER II

CATEGORY	CATEGORY WEIGHTING	INDICATOR	NET WEIGHT
AMOUNT INVESTED	45%	Cumulative total clean energy investments, 2006–2011	6.8%
		Six-year compounded annual growth rate of total clean energy investments, 2006–2011	6.8%
INVESTMENT TYPE	N/A	Total asset finance investments*	N/A
		Total corporate finance investments (mergers & acquisitions, public markets, joint ventures, corporate debt) into clean energy*	
		Total venture capital or private equity investments into clean energy*	
		Total small distributed-scale investment, 2006–2011*	
FUND SOURCES	20%	Cumulative total public or private loans, grants, grant programs, and credit lines available for the development of clean energy projects	3.0%
		Total investments in clean energy invested by local players for local projects, 2011	3.0%
GREEN MICROFINANCE	25%	Number of microfinance institutions offering green micro-finance instruments	3.8%
		Total amount of green micro-loans disbursed	1.9%
		Number of borrowers of green micro-loans	1.9%
COST OF DEBT	10%	Average cost of green micro-finance debt	0.3%
		Average cost of project finance debt	2.7%

Note: N/A refers to indicators that were not given a score in the parameter calculation or the overall *Climatescope* score calculation.

*All four indicators comprising the investment type category have already been aggregated into the cumulative total clean energy investments indicator. Scoring them would entail double counting.

GREEN MICROFINANCE

Green microfinance is playing an increasingly important role in the deployment of clean energy and energy efficiency technologies in the developing world. Considering its nascent, but growing importance, it has a weight of 25% toward Parameter II. Information on microfinance that is specifically 'green-oriented' is not readily available.

Data gathering for the three indicators comprising the green microfinance category and the cost of green micro debt indicator followed a different methodology. All data inputs were derived from responses to a specific survey. A total of 448 microfinance institutions (MFIs) were polled representing all such organizations in the region registered with data provider MixMarket. Of those surveyed, 365 (81%) responded. Of those, 71 or 19% of all polled could be considered 'green' in that they offer some form of debt product intended to facilitate low-carbon energy deployment or energy efficiency improvement for low-income borrowers. Countries were then ranked based on the presence of these green MFIs. This was done by multiplying the number of green MFIs in a country by its 'level of microfinance penetration' – an indicator developed by the MIF used in its *Microfinanzas en América Latina y el Caribe: El sector en cifras* October 2010 report. The level of microfinance penetration measures the importance of the microfinance sector in a country versus its financial

sector overall. Countries were ranked using the indexing approach for both green micro-loans disbursed and green micro borrowers by levelizing these data points by total amount of microfinance disbursed for the given country (MixMarket data) and population, respectively.

COST OF DEBT

Financing conditions in any given country are critical for developers and investors alike. The sovereign cost of debt also serves as a useful benchmark for country risk and is thus an important indicator to be considered by those looking to enter a new market. The cost of debt category comprises two indicators: average cost of green micro debt and average sovereign cost of debt, each weighting 0.3% and 2.7% in the overall *Climatescope* index. In all, the cost of debt category accounts for 10% of Parameter II.

Bloomberg New Energy Finance estimated project debt costs by taking data on the cost of sovereign debt from the Bloomberg Terminal for long-term dollar-denominated sovereign bonds for each country. Data on cost of green micro debt was aggregated from survey responses. No levelization was needed for the two indicators comprising the cost of debt category since those were provided as simple interest rates. The indexing approach was used to score all nine indicators comprising Parameter II given their quantitative nature.

LOW-CARBON BUSINESS & CLEAN ENERGY VALUE CHAINS

Parameter III

A nation's ability to attract capital and accelerate low-carbon energy deployment is also partly contingent on how many segments of key value chains it has in place. A strong local manufacturing base can attract investment and produce the necessary equipment to expand clean power generating capacity. A sufficient local financial services sector can supply the funds needed for the industry to grow. Clean energy service providers, including developers, law firms, and others provide the requisite assistance to facilitate expansion. This parameter simply sought to assess which links in the various low-carbon energy value chains are present and which are missing.

The parameter represents 10% of the overall *Climatescope* score and consists of three indicators: financial institutions in clean energy, value chains for clean energy sectors, and clean energy service providers. The financial institutions indicator represents 25% of the Parameter

III score and 2.5% of the overall *Climatescope* score. It measured whether four categories of financial providers are active in the region: banks, corporate finance institutions, venture capital and private equity, and funds. The clean energy value chain indicator represents 50% of the Parameter III score and 5% of the entire *Climatescope* score. In all there are six possible clean energy value chains: biofuels, geothermal, small hydro, solar and wind. Together these comprise a total of 40 clean energy industry sub-activities. The clean energy service providers indicator represents the final 25% of the Parameter III score and 2.5% of the overall Index score. In all, there are 20 possible clean energy sub-activities available to serve a given country's low-carbon economy.

The table below summarizes the weighting for the indicators, each of which had multiple data inputs. For these indicators, countries received scores based on a straight count per input for each indicator. Countries were not judged on the actual number of organizations they are home to but rather how many segments of each given value all the organizations in their nation fulfill. Once a count was established for each category, countries were ranked using the indexing approach.

Data populating this parameter was derived primarily using the Bloomberg New Energy Finance proprietary database of clean energy service providers, clean energy financial providers and clean energy value chains. Additional research was conducted to cross-check the existence of each sub-category in each of the 26 countries mostly from primary and secondary sources, including interviews.

SCORING FORMULA FOR PARAMETER III

INDICATOR	INDICATOR WEIGHTING	INPUTS / SUBSECTOR	SCORING APPROACH
3.1 FINANCIAL INSTITUTIONS IN CLEAN ENERGY	25%	4	COUNT
3.2 CLEAN ENERGY VALUE CHAINS BY SECTOR	50%	40	COUNT
3.3 CLEAN ENERGY SERVICE PROVIDERS	25%	20	COUNT

SCORING FORMULA FOR PARAMETER III: INPUTS / SUBSECTORS SUMMARY

3.1 FINANCIAL INSTITUTIONS IN CLEAN ENERGY

Inputs
Banks
Corporate Finance
Funds
Private Equity/Venture Capital

3.2 CLEAN ENERGY VALUE CHAINS BY SECTOR

Sector	Sub-Sectors
Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
Wind	Bearings; Blades; Construction/Installation; Gear-boxes; Generators; O&M; Power Generator; Project Development; Turbines

3.3 CLEAN ENERGY SERVICE PROVIDERS

Sector	Sub-Sectors
Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
Developers & Utilities	Integrated Service Provider
Marketing Services	Distributor; Market Research; PR Company
Financial & Legal Services	Banking-Corporate; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

GREENHOUSE GAS MANAGEMENT ACTIVITIES

Parameter IV

The Greenhouse Gas Management Activities parameter sought to examine activities related to emission reduction efforts. The analysis considered two sets of activities: (1) offset projects and (2) voluntary corporate initiatives.

Offset projects – In the Latin American and Caribbean region, the most important activity related to greenhouse gas management has been development of ‘offset projects’: projects which reduce carbon emissions and generate associated credits. (These credits may be purchased by companies looking to offset their emissions for sustainability efforts, or by companies facing compliance in carbon markets around the world, such as the European cap-and-trade program.)

The analysis of offset project activity looked at three metrics for each country: volume of offset activity, riskiness of projects, and breadth of service providers. More specifically: (i) volume of activity is based on the number of offset credits expected to be issued in the given country in 2012 by projects that either fall under the Clean Development Mechanism (CDM, a flexibility mechanism that is part of the Kyoto Protocol’s plan for addressing climate change) or by projects that generate credits purchased by companies for sustainability reasons; (ii) riskiness of projects is based on the variability of success rates (actual vs expected credit generation) for CDM projects in the given country; and (iii) breadth of service providers is based on the number of organizations actively providing CDM validation services in the given country.

Of these, only the first (volume of offset activity) required levelization. The levelization involves two steps: levelizing by country size (larger countries should have more opportunities for emission reduction) and then by carbon intensity (countries with high carbon intensity should have an easier time finding emission reduction opportunities). The sources used for this analysis were Bloomberg New Energy Finance’s database of CDM and other offset development projects (which includes data on volume, success rates, and validators).

Voluntary corporate efforts – This analysis, evaluating efforts by companies to manage their emissions footprint, looked at two metrics for each country: (i) the number of companies that have implemented initiatives to reduce their environmental air emissions and (ii) the number of companies that have implemented initiatives to make their use of energy more efficient.

Naturally, in the course of normal business, many companies would seek to become more efficient, and some might indirectly experience reduced emissions. But this analysis is interested in identifying companies that proactively and strategically pursue these goals. The source for this analysis is a line-by-line reading of companies’ annual reports or corporate responsibility reports (performed by Bloomberg’s Environmental Social and Governance team) looking for explicit references to companies’ intentions to pursue these sustainability initiatives. Levelization behind both metrics is simply the number of companies tracked by Bloomberg in the given country. So, for example, since there are 7 companies in Chile with emission reduction initiatives, and Bloomberg tracks a total of 226 companies in that country, Chile’s levelized score for this metric is 0.03. Note that in the Latin American and Caribbean region, Bloomberg tracks a total of 1,681 companies

Weighting – Because offset project activity is the primary driver for greenhouse gas management in the region, this category was weighted 70% (40% for volume of offset credits, 15% each for CDM risk and breadth of CDM validation presence). The other category, voluntary corporate efforts, received the remaining 30% weighting (15% each for emissions reductions efforts and energy efficiency initiatives).

SCORE SUMMARIES

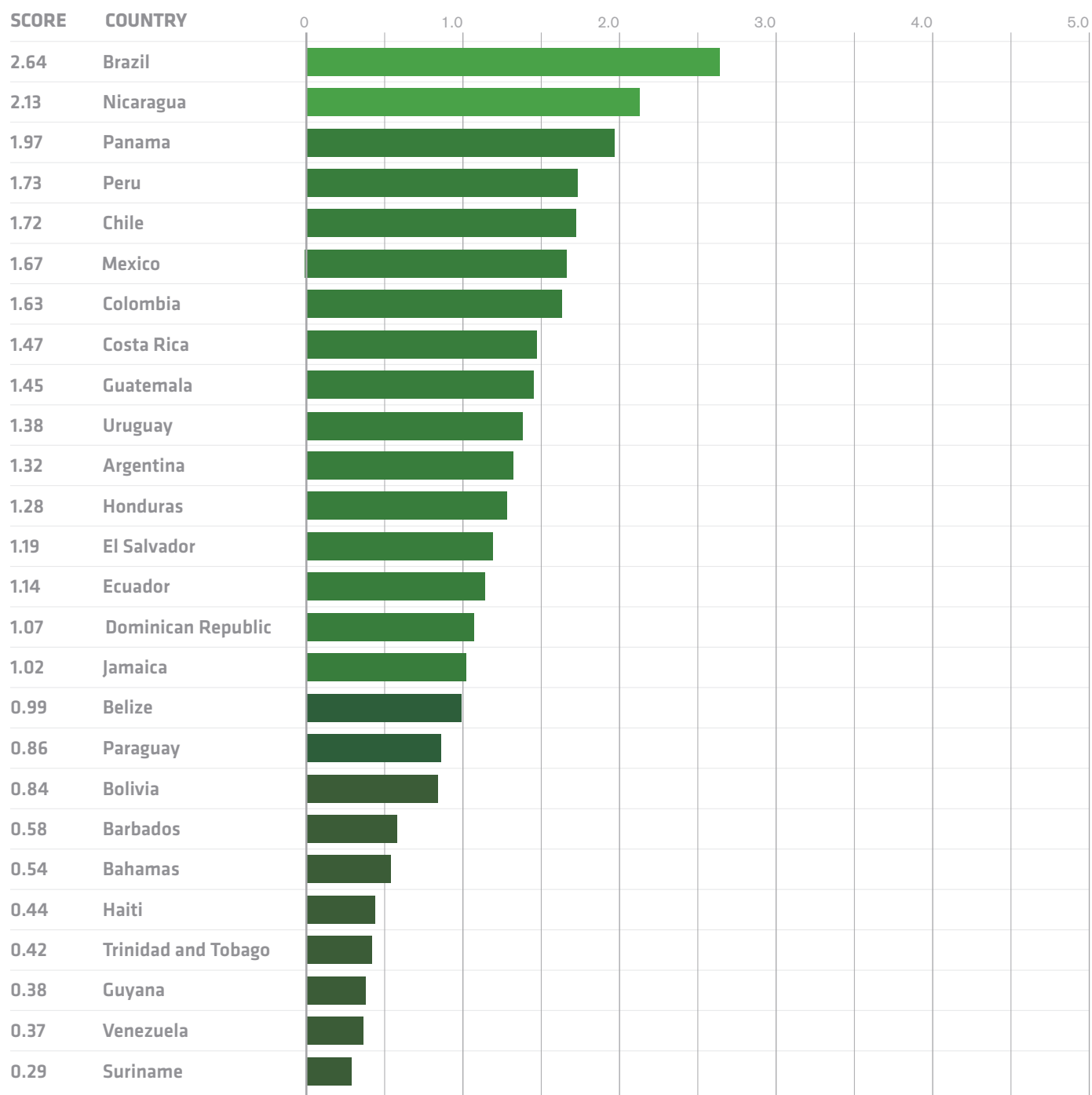


In this first edition of *Climatescope*, Brazil emerges with the highest overall score at 2.64. The country performed strongly in all four parameters considered. Nicaragua ranked second with a 2.13 overall score largely because it topped the list in terms of clean energy investments and the availability of green microfinance. Panama took third with a 1.97 mark thanks to substantial efforts at managing greenhouse gas emissions and for having a welcoming enabling framework. This section explores how the countries stack up when specific parameters are examined in isolation.

Barrier Islands off the coast of Brazil are constantly changing with the influence of nature and man.

OVERALL CLIMATESCOPE SCORES

Ranking and Scores by Country



Colors show range for overall score



ENABLING FRAMEWORK

Parameter I Results

Looking just at the Enabling Framework parameter creates a change in results at the top of the table and throughout the rankings. Panama scores highest with a 2.70. With an Enabling Framework score of 2.60, Brazil ranks second on this parameter. Meanwhile, Colombia, which ranked seventh in the overall *Climatescope*, gets a 2.201 score on this parameter and is ranked third. Those nations at the bottom of the list also changed dramatically, with the Bahamas and Trinidad and Tobago replacing Suriname and Guyana at 26th and 24th place, respectively. Venezuela remains at 25th position.

As was discussed in the methodology section of this report, the clean energy policy indicator has the heaviest influence on the overall Enabling Framework score. On this indicator, Brazil received by far the highest mark at 3.90, followed by Colombia and Mexico with 2.90 each. No country in the region came close to receiving the maximum possible mark of 5 in this indicator. This is largely a reflection of the fact that many nations are just beginning to establish clean energy policy regimes.

Brazil also had the highest score on two other indicators comprising Parameter I: power sector structure and biofuels production. Brazil was not alone in terms of power sector openness to new entrants in the clean energy generation sector as four other countries also received the top mark for this category: Chile, Colombia, El Salvador and Peru. Countries that scored lowest on the power market structure indicator have relatively regulated markets or vertically integrated utilities that dominate. These include Costa Rica, Honduras, Mexico, Paraguay and Venezuela. Such markets offer private generators less flexibility and ease for building new generation assets.

The clean energy rural electrification indicator was the only binary data point of Parameter I, and 18 of 26 countries have implemented programs that use clean energy to expand energy access to the rural poor. The eight that did not: Argentina, Bahamas, Barbados, Belize, Haiti, Paraguay, Suriname and Trinidad and Tobago.¹ Some countries have rural electrification programs in place that do not deploy clean energy in a meaningful way.

Belize, Haiti and Nicaragua have the region's highest share of renewable installed capacity as a percentage of overall

generation (a category which does not include large hydro) for slightly different reasons. Belize has 136MW total installed capacity, almost 60% of which is represented by renewables but it actually imports more than a quarter of the power it consumes from its neighbors and much of that is not clean. Haiti has the region's lowest installed power capacity at 107MW and its single 48MW small hydro facility represents just under half total capacity. Meanwhile, Nicaragua has the region's third highest share of renewables with 305MW of 1GW total, but relies heavily on dirty oil and diesel for the remainder of its power needs. This leaves plenty of room for improvement and more clean power additions. Jamaica, Uruguay and Panama did the most in terms of adding new clean power capacity from 2010 to 2011. Over the same period, Honduras, Peru, Ecuador and El Salvador saw their renewable capacities actually drop as some projects were decommissioned.

In terms of actual megawatt hours of clean energy generated as a percentage of overall generation, five of seven Central American countries (all except Honduras and Panama) ranked highest because of reliance on geothermal and biomass plants which typically have high capacity factors compared with other renewables. Belize scored best, even though it imports most of what it consumes. El Salvador was second on the list even though it actually saw its clean energy capacity diminish last year.

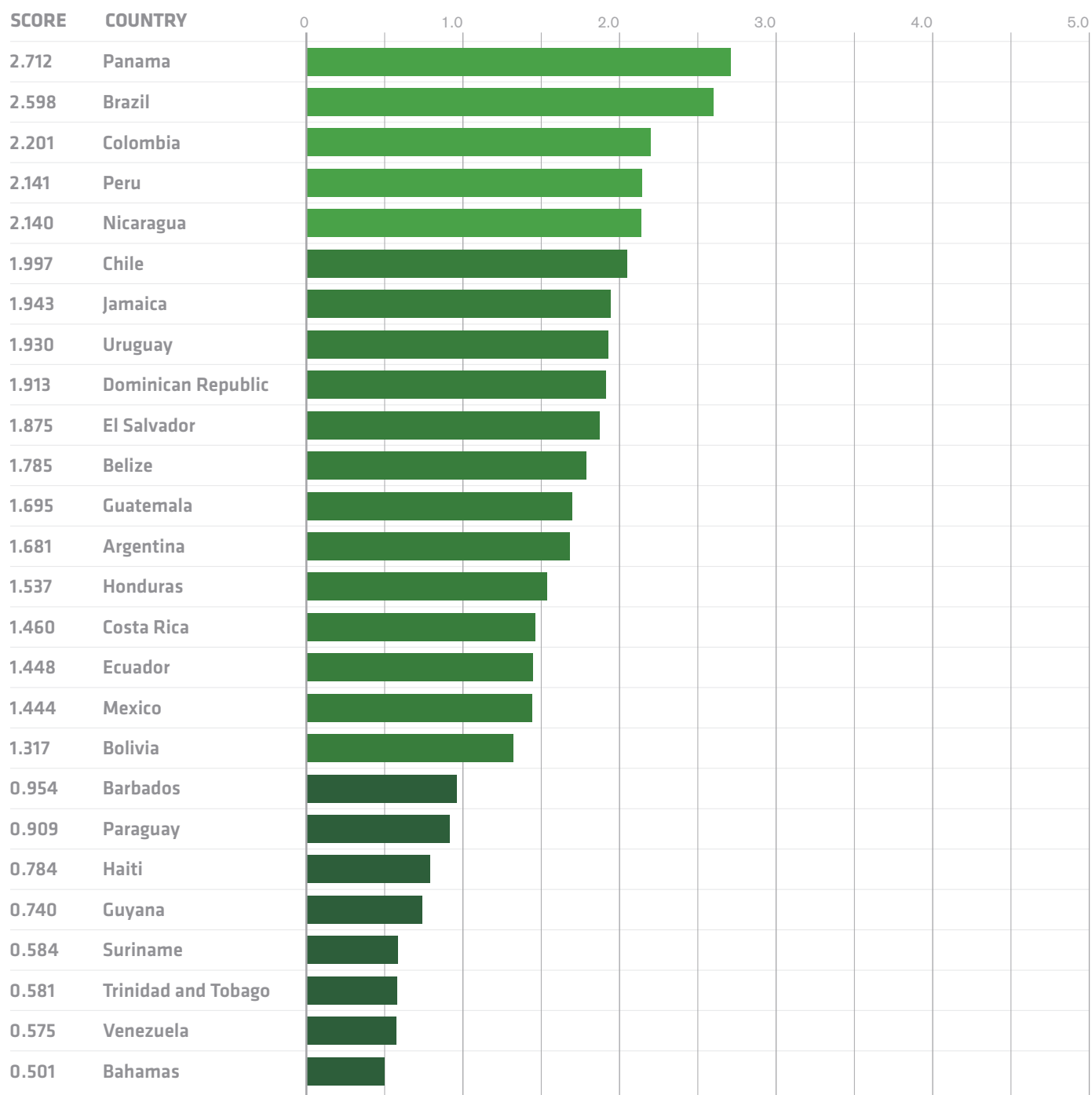
As measured in clean energy generation growth from 2010 to 2011, Panama had the highest score. Belize and Uruguay followed while Ecuador saw a 16% decrease in its clean energy generation during the period.

There are only five countries in the Latin American and the Caribbean region with biofuel production capacity: Brazil (24.7bn liters), Argentina (3bn liters), Colombia (0.85bn liters), Peru (0.19bn liters) and Paraguay (0.14bn liters). Measured on a levelized basis to take the relative sizes of their economies into account, Brazil, Argentina and Paraguay scored highest on the biofuels production penetration indicator while Colombia and Peru received the lowest marks. Interestingly, in the indicator analyzing growth of biofuels production capacity, Peru rose to the top with an 86% growth rate from 2010 to 2011.

Continued on the next page.

1. While Paraguay and Suriname have announced clean energy projects for rural electrification, nothing had been deployed by 2011. This explains why they received a zero mark for this indicator.

Parameter I Ranking and Scores



Colors show range for overall score



Parameter I Results Continued.

Brazil fell to the bottom of this list due to a 18% decrease in biofuel production as high sugar prices compelled mill operators to produce less ethanol and more sugar. Countries with no biofuels production were not ranked in either of these indicators and thus were not punished for lacking biofuels capacity.

High electricity prices make for attractive markets for clean energy project developers, and there are a number of countries in the region where customers pay high prices at both the retail and the wholesale levels. Consumers in Jamaica, Barbados and Belize pay the highest retail rates in the entire region, largely because these markets rely predominantly on imported fossil fuels for power generation. Markets with low retail tariffs include Paraguay, due to the predominance large hydro projects, and Venezuela, where prices are impacted by heavy government subsidies. Only 11 of 26 countries in the region have functioning wholesale or spot markets for power. Panama, El Salvador and Nicaragua have the highest average spot power prices in the region while

Brazil offers the lowest largely because of the impact of the Itaipu large-hydro facility on its electricity pricing structure. Countries with no wholesale power markets were judged solely on their retail prices.

Market size expectations for future clean energy development in the *Climatescope* are measured by examining a country's current electrification and its power demand growth rate. Countries with relatively low rates of electrification offer more opportunities for investors and developers, particularly of small distributed-scale installations. Paraguay (11.6%), Suriname (8.5%) and Argentina (6%) saw the most rapid increases in power demand growth from 2010 to 2011. Guatemala (-0.31%), Jamaica (-3%) and Venezuela (-3%) finished at the bottom of the pack. Not surprisingly, some of the poorest countries in the region offer some of the largest market potential for distributed generation due to their low electrification rates. This include Haiti, where just 39% of the population has access to the grid, Honduras (70%) and Nicaragua (72%).

CLEAN ENERGY INVESTMENT & CLIMATE FINANCING

Parameter II Results

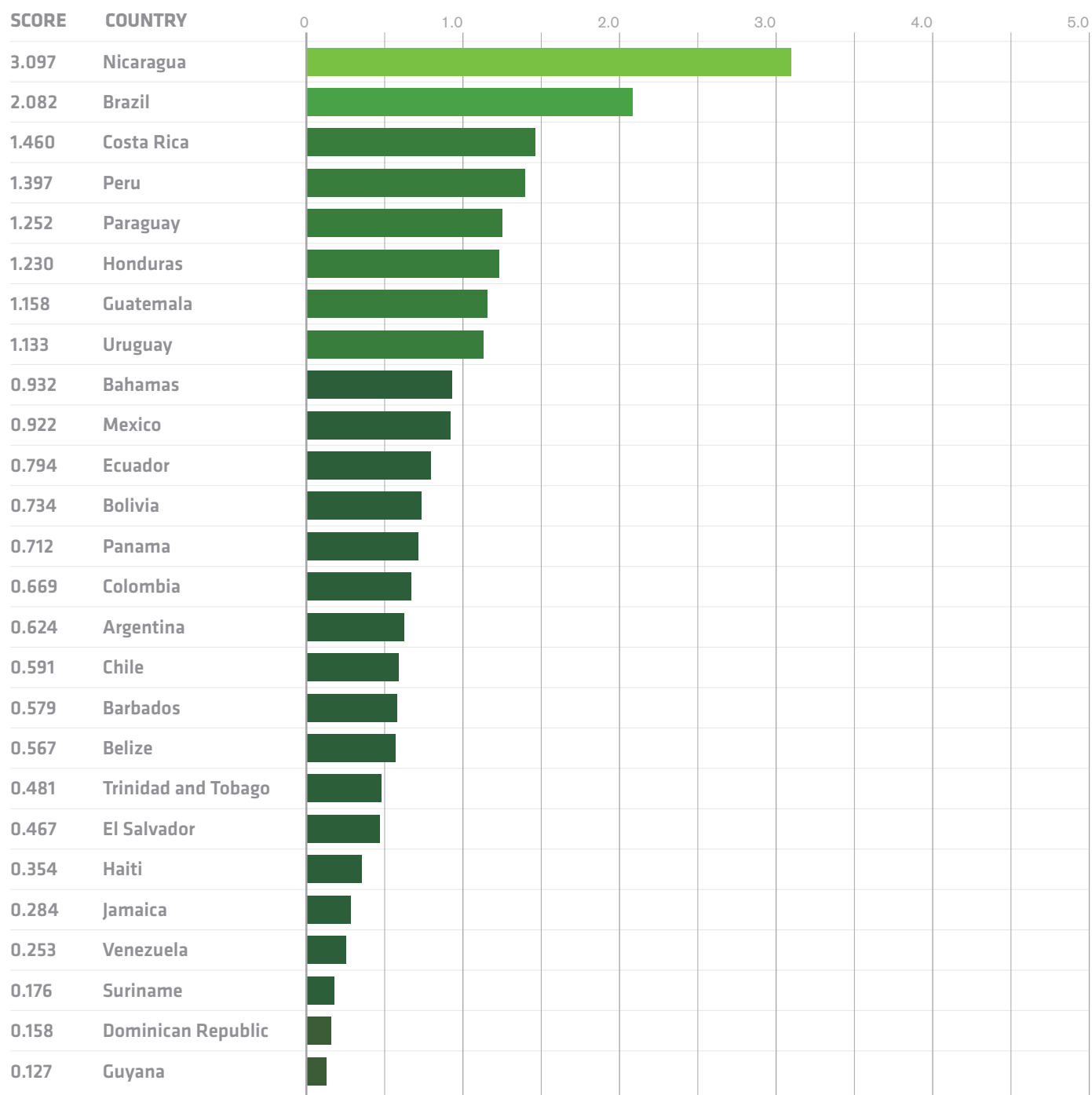
Assessed entirely on its own, the Clean Energy Investment and Climate Finance parameter substantially reshuffles the nations' order in terms of scores. Nicaragua scores far and away the highest with a 3.10 while Brazil, home to the region's largest economy, is bumped to second with a 2.08. Costa Rica moves to third, scoring 1.46. The bottom of the table changes only slightly, though the Dominican Republic drops ten positions to 25th with a 0.16 score. Suriname and Guyana essentially switch spots while Venezuela moves up to 23rd.

Bloomberg New Energy Finance recorded a cumulative total of \$90bn invested in Latin America and the Caribbean clean energy projects and companies from 2006 through 2011. In 2011, alone some \$16bn was committed to the region's low-carbon economy. In absolute terms, Brazil attracted the lion's share of all of these funds. However, when these investments are compared against the size of a nation's economy as they are in the total clean energy investments indicator, Nicaragua, Belize and Panama rank as the top three nations. Brazil lands in fifth position after levelization against its GDP. Barbados, Bolivia and Suriname rank in the bottom three for this indicator.

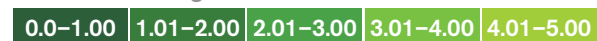
Countries with the highest growth rates of clean energy investments were not necessarily the same as those that attracted the most funds and this highlights how the clean energy environment in the region may be poised for change. Paraguay, Costa Rica and Guatemala had by far the highest five-year compounded annual economic growth rates in clean energy investment, while nine countries did not experience any growth in this area at all. Nicaragua was the preferred destination for clean energy-related grants from international donors. Brazil received by far the most funds from local players for its clean energy projects thanks to \$13.7bn in cumulative commitments from the Brazilian National Development Bank (BNDES).

In terms of green microfinance, Brazil and Nicaragua also were ahead of the pack. Nicaragua is the most robust green microfinance market in the region, but Brazil has committed more green funds to low income borrowers and micro, small and medium enterprises than any other country. The region's largest economies, Brazil and Mexico also offer the best borrowing conditions at the large scale and micro-scale, respectively.

Parameter II Ranking and Scores



Colors show range for overall score

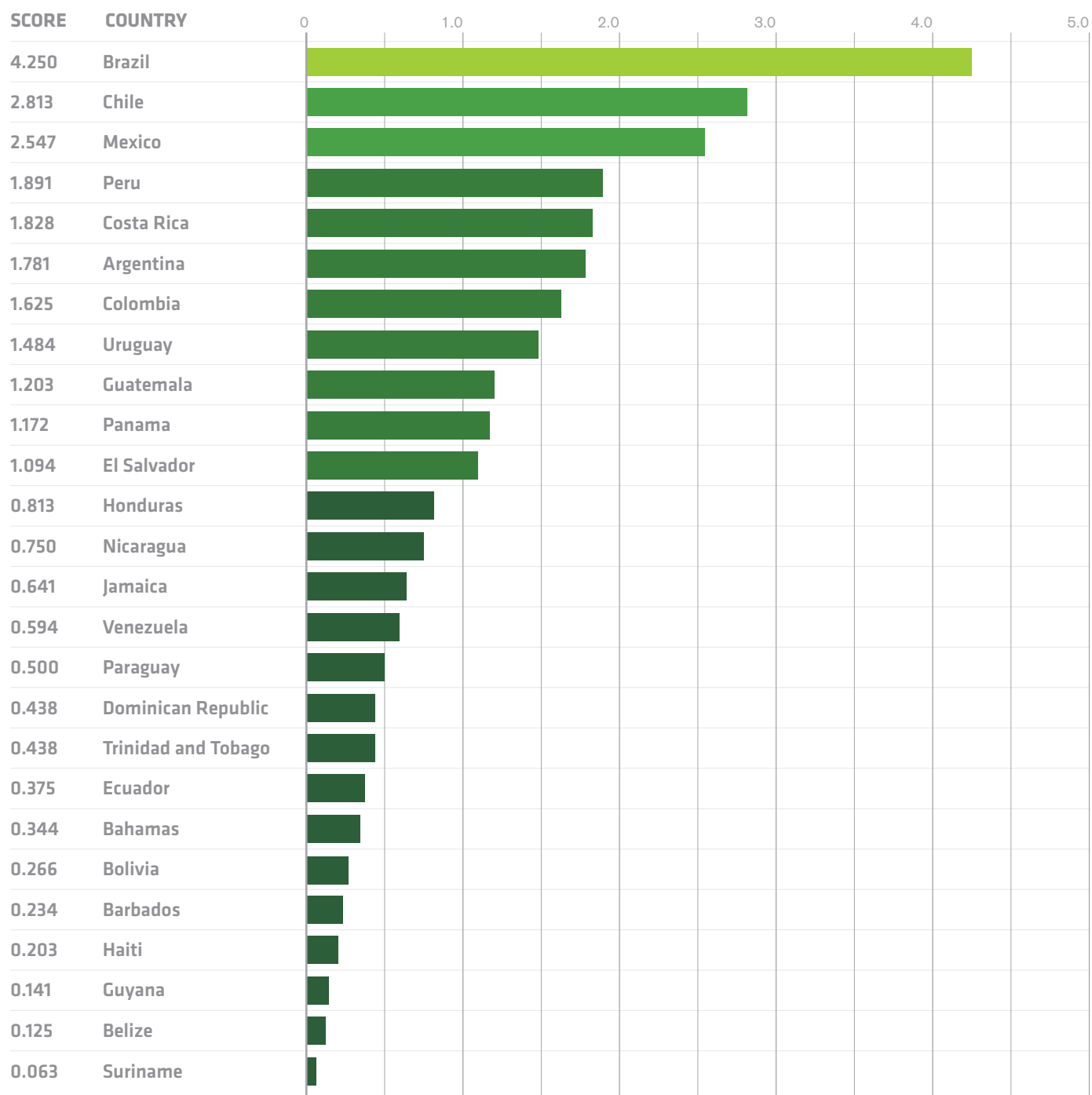


LOW-CARBON BUSINESS & CLEAN ENERGY VALUE CHAINS

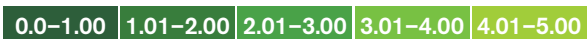
Parameter III Results

A clean energy equipment manufacturer looking to site a new factory or a project developer looking to build a new plant needs to understand the landscape for clean energy finance, manufacturing and service providers in a given country. By looking solely at the Low-Carbon Business and Clean Energy Value Chains parameter, the country rankings again reshuffle. Not too surprisingly, the largest economies rank highest. Brazil scored highest largely because it ranks at the top in all three indicators comprising this parameter: financial institutions in clean energy, clean energy value chains, and clean energy service providers. Chile is also among the top three in all three indicators. Meanwhile, Mexico ranks second and third in the value chains and the service provider indicators, respectively. Countries at the bottom of the Parameter III ranking are smaller economies. They stand to improve their scores by specializing on any missing value chain link for the region.

Parameter III Ranking and Scores



Colors show range for overall score

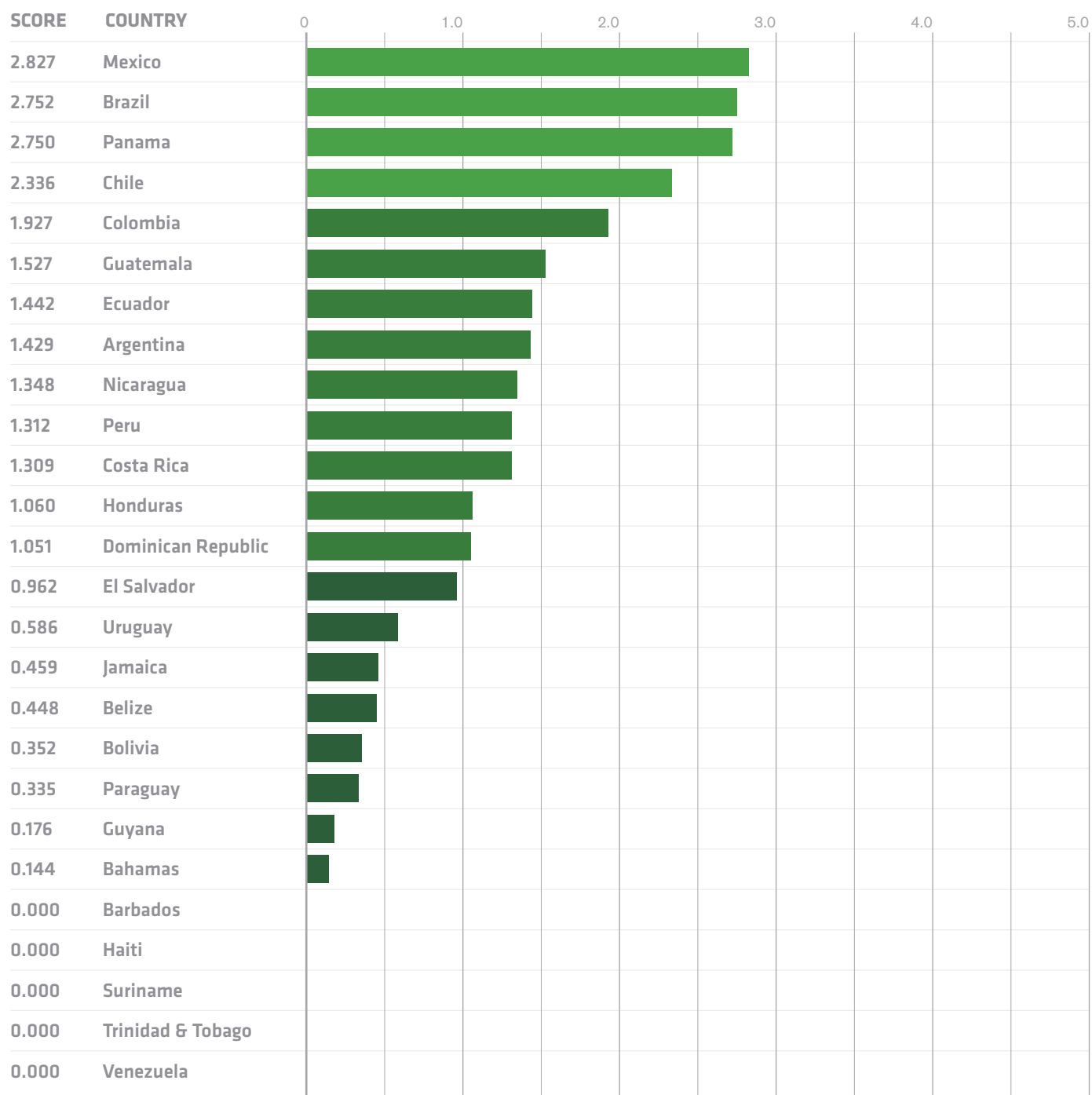


GREENHOUSE GAS MANAGEMENT ACTIVITIES

Parameter IV Results

Examined on its own, the Greenhouse Gas Management Activities parameter highlights local CO₂ emissions reduction efforts through offset projects and voluntary corporate initiatives. As in the Low-Carbon Business and Clean Energy Value Chains parameter, large economies such as Mexico and Brazil emerge as leaders partly because they host the top Clean Development Mechanism (CDM) projects in the region. For its size, Panama fared particularly well on this parameter, with the third highest score. All nations that performed well in this parameter host large multinational corporations that tend to report and support greenhouse gas management activities. This suggests that climate change issues are at least to some degree impacting corporate decision-making and are not just confined to policy-making public sector. Barbados, Haiti, Suriname, Trinidad and Tobago and Venezuela did not receive a score for Parameter IV and were all ranked 22nd.

Parameter IV Ranking and Scores



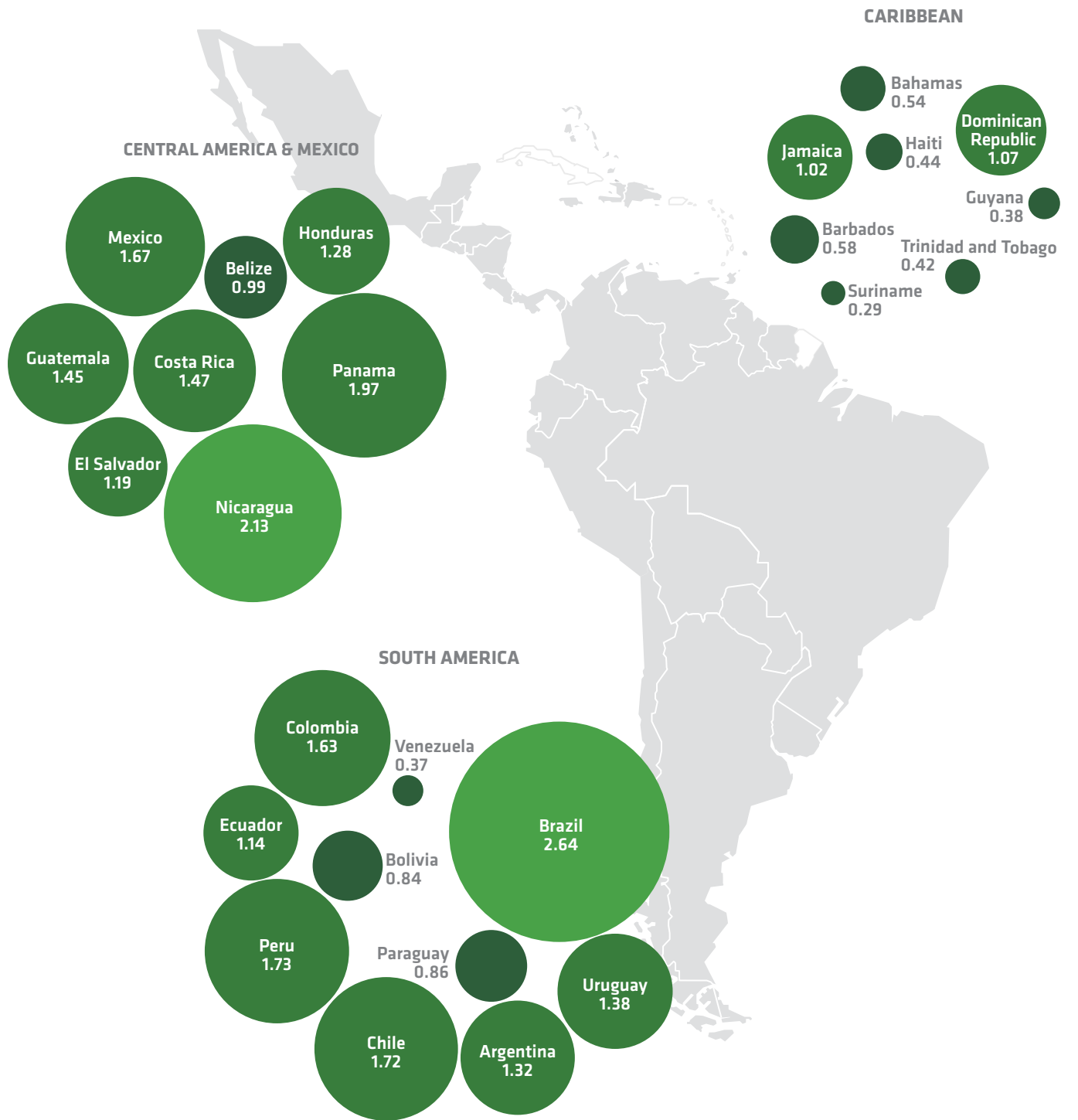
Colors show range for overall score



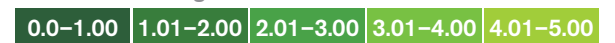
Note: Barbados, Haiti, Suriname, Trinidad & Tobago and Venezuela did not receive a score for Parameter IV and were all ranked at 22nd.

OVERALL CLIMATESCOPE SCORES

Ranking and Scores by Region



Colors show range for overall score



COUNTRY PROFILES

An aerial photograph of a coastal landscape in the Bahamas. The image shows a complex network of deep, narrow channels of vibrant blue seawater cutting through light-colored, sandy sediments. The land is a mix of brown and tan tones, with some darker patches. The water is a striking turquoise color, contrasting sharply with the land. The overall scene is a dramatic interplay of land and sea.

Vivid blue seawater cuts through the sediments that make up the Bahamas, forming deep channels through the surface of the land.

SOUTH AMERICA



Argentina

GDP¹: **\$716.4bn**
 6-Year Economic Growth Rate²: **7%**
 Population³: **41m**
 Total Clean Energy Investments, 2006–2011⁴: **\$1.75bn**
 Installed Power Capacity⁵: **28GW**
 Renewable Share⁶: **2%**
 Total Clean Energy Generation⁷: **1,979GWh**
 Top Energy Authority: **Ministry of Planning**



OVERALL RANKING

11

OVERALL SCORE

1.32

PARAMETER	RANKING	SCORE
I. Enabling Framework	13	1.681
II. Clean Energy Investment & Climate Financing	15	0.624
III. Low-Carbon Business & Clean Energy Value Chains	6	1.781
IV. Greenhouse Gas Management Activities	8	1.429

SUMMARY

Argentina, the region's fourth largest economy, ranked 11th out of 26 countries with an overall *Climatescope* score of 1.32. The country fared especially well in the parameter analyzing robustness of low-carbon businesses and clean energy value chains. It scored well above the regional average in the clean energy policy, power sector structure, and growth rate of power demand indicators. Still, it lags behind its peers in terms of investment volumes due to financing constraints and a relatively high cost of debt.

In 2011, cumulative clean energy investments (2006–2011) reached \$1.75bn, mainly driven by biofuels (64%), followed

by wind (20%), as well as biomass & waste (12%). From 2006 to 2008, clean energy investments grew by merely 8.5%, significantly below the regional average of 14%. High perceived risks by foreign investors as well as limited availability of local financing lines have been major constraints. In the short term, the difficulty to secure capital at reasonable cost will likely keep investment volumes on the low end despite the country's extraordinary bioenergy and wind resource potential.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on a compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Secretaria de Energia Notes: For 2010.
 6. Ibid.
 7. Ibid.

I. ENABLING FRAMEWORK

Ranking 13 / Score 1.681

Argentina ranked 13th in Parameter I, held just above average, due to the high mark it obtained in the clean energy policy indicator. The country has six clean energy policies in place, and experts consulted for this study gave it an above average score (2.65 out of 5).

Argentina is one of four countries to have implemented a feed-in tariff scheme for clean energy power generators, granting power purchase agreements (PPA) via government-sponsored auctions for renewable power beginning in 2010.

The country also has tax-based incentives, a non-binding renewable energy target of 8% until 2016, and 7% biodiesel and 5% ethanol blending mandates. These policy efforts have had mixed success to date. Argentina's ethanol blending mandate has not been firmly enforced; high sugar prices have given producers little incentive to convert sugarcane to ethanol and the targets have not been met. However, reverse auctions for renewable energy power contracts held in January 2010 effectively allocated 895MW of new potential wind and biomass capacity. Argentina has 28GW of installed power capacity with nearly 2% represented by renewables. This is poised to grow thanks to the 2010 contract awards.

KEY POLICIES

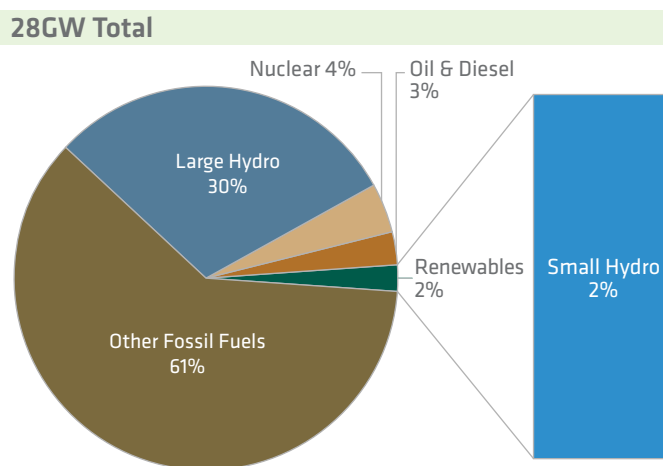
Qty	Category
	Available Policy Type; Unavailable Policy Type
	Energy Market
4	Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance
	Grants; Incubators; Infrastructure funds; Other
	Debt Finance
	Funding; Export trade credit; Green bonds; Other
	Tax-Based
2	Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market
	Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

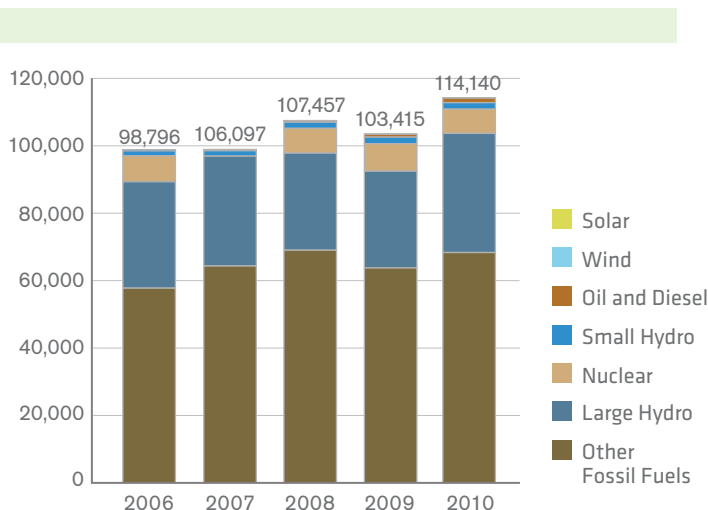
Electricity spot prices in Argentina are the lowest in the region and retail prices have traditionally been a third to a half of those in neighboring countries thanks to government subsidies for generators and consumers. This on its own does not bode well for clean energy deployment, though things are starting to change. Residential and commercial consumer prices quadrupled in the first quarter of 2012 after subsidies were withdrawn. Finally, Argentina has seen relatively low infrastructure investment, which has compounded its need for fuel oil imports to cover peak demand.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)



Source: Bloomberg New Energy Finance, Secretaria de Energía

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Secretaria de Energía

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

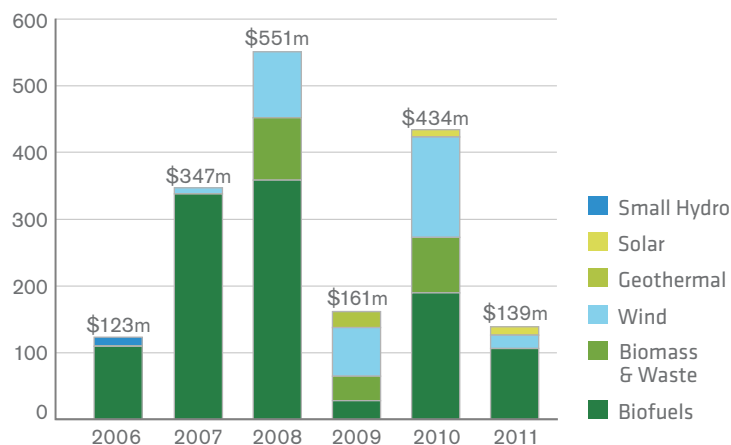
II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 15 / Score 0.624

Cumulative clean energy investments to date total \$1.75bn in Argentina, but annual investment dropped to \$138m in 2011, down 68% from the prior year. Funding evaporated due to the global economic slowdown, investor concerns over local market risk, and limited local financing lines. Historically, Argentina's clean energy investments have focused on biofuels (64%) for the production of soybean biodiesel as well as sugarcane and corn ethanol. Wind has attracted increasing investment, reaching 20% of the cumulative total in 2011. Wind will likely continue increasing in importance as recently tendered wind projects move toward commissioning. In 2011, the solar sector attracted some \$12.6m, up 15% from the year prior.

In contrast with other markets in the region, a significant portion of investments in Argentina has been made directly from corporate balance sheets or through the issuance of corporate debt. Project finance is often difficult to secure in the country due to the limited number of local development banks and because commercial banks do not have the liquidity to provide large debt portions. With few exceptions, Argentina's clean energy investors are local players better suited to manage the political and country risks.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

Securing debt in Argentina is very expensive. The country's sovereign cost of debt stands at 11.3%, a rate attributable to its 2002 bond default and, in light of this year's nationalization of YPF SA, one that is unlikely to moderate soon. The high cost of debt directly affects generation costs for all clean energy technologies. While the cost for green microfinance is relatively low at 3.5%, only three microfinance institutions have made green financial products available. In all, they have offered loans totaling around \$150,000 to 1,002 micro, small and medium enterprises.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

20 MFIs

How many offer green micro loans:

3 MFIs

Average costs of green micro loans:

3.5%

Total amount of green micro loans disbursed:

\$153,696

Number of green micro borrowers:

1,002

Green MFI Organizations:

Capital para PYMES

Emprenda

Fundación Pro Vivienda Social (FPVS)

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF between October 2011 and January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 20 MFIs in Argentina, 16 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

LOCAL INVESTMENTS BY LOCAL PLAYERS

2011 Total

\$138.7m

Top Three Local Investors

1st	Unitec Bio	\$101m
2nd	Sociedad ENERSE SAPEM	\$20m
3rd	Province of La Pampa	\$5.2m

Source: Bloomberg New Energy Finance.

Note: Figures only include investments in new build clean energy projects in 2011, do not include refinancing or acquisitions.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 6 / Score 1.781

Argentina has a fairly sophisticated clean energy value chain with several companies providing equipment, maintenance, as well as services for clean energy investors. Argentina is the only Latin American nation to produce large-scale wind turbines with a proprietary design. IMPSA and INVAP both manufacture the equipment in Argentina for export across the region. The former has a production facility in Argentina, and three further factories in Brazil serving the market there. There are also six clean energy service providers which mostly provide operations and maintenance to clean energy plants.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical ; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor ; Market Research; PR Company
4	Financial & Legal Services	Banking-Corporate ; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial ; Lawyer-Financial Markets ; Lawyer-Project Finance ; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
3	Biofuels	Distribution & Blending ; Engineering Companies; Feedstock Suppliers ; Producers ; Retailing/IOC
3	Biomass & Waste	Feedstock Supply ; Manufacturing Equipment; Power Generation ; Project Development ; System Integration
2	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration ; Project Development ; Turbine & Power Block; Well Completion & R.C. Resource
1	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
2	Solar	Balance of Plant ; Cells; Ingots; Installation; Modules; Project Development ; Raw Feedstock (solar-grade silicon); Wafers
5	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators ; O&M ; Power Generator ; Project Development ; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
●	Corporate Finance
	Funds
	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 8 / Score 1.429

Argentina scored in the top third among nations on the greenhouse management activities parameter (1.43), coming in eighth overall. Total offset volume in the country stands at 103 tCO₂/\$m, while there are a total of 11 Clean Development Mechanism (CDM) projects registered and a

very strong local CDM validation presence, with a total of nine companies active in the sector. As for private sector initiatives, there are also two companies in the country that provide energy efficiency solutions

CARIBBEAN



Bahamas

GDP¹: **\$10.8bn**
 6-Year Economic Growth Rate²: **1%**
 Population³: **0.35m**
 Total Clean Energy Investments, 2006–2011⁴: **\$3.6m**
 Installed Power Capacity⁵: **575MW**
 Renewable Share⁶: **N/A**
 Total Clean Energy Generation⁷: **N/A**
 Top Energy Authority: **Ministry of Environment**

Nassau

OVERALL RANKING

21

OVERALL SCORE

0.54

PARAMETER	RANKING	SCORE
I. Enabling Framework	26	0.501
II. Clean Energy Investment & Climate Financing	9	0.932
III. Low-Carbon Business & Clean Energy Value Chains	20	0.344
IV. Greenhouse Gas Management Activities	21	0.144

SUMMARY

With an overall score of 0.54, the Bahamas placed 21st among 26 countries assessed in the *Climatescope* study. Despite its rank, the island nation has two important strengths: relatively low cost of financing and a fairly well developed low-carbon businesses and clean energy value chains. In fact, the existing clean energy value chain of clean energy service providers in the Bahamas is among the most robust in the Caribbean.

From 2006 to 2011, cumulative funds committed to renewable energy totalled \$3.6m thanks to investment in capacity additions of small distributed photovoltaic projects. Like other Caribbean nations, the Bahamas has yet to develop a

policy framework to foster major clean energy deployment. However, that may soon change. The government’s National Energy Policy Committee has proposed targets to improve energy access and energy security via renewable sources. The government has also encouraged solar energy use through a program funded by the Ministry of Environment.

While the Bahamas has far to go in developing its clean energy sector, the country’s high energy costs, due to its reliance on fossil fuel imports, offer favorable conditions for developers aiming to swap in new generation from cleaner sources; in some cases, renewable generation is a feasible alternative without any form of government subsidy.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.

2. Source: Ibid. Notes: Calculation based on compounded annual growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.

5. Notes: Estimate based on data from Bahamas National Energy Policy and Grand Bahama Power Company for the 2011 period.

6. Ibid. Notes: N/A refers to no renewable installed capacity.

7. Ibid. Notes: N/A refers to no renewable power generation available.

PARAMETERS SUMMARY

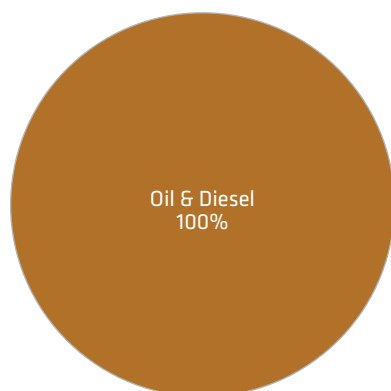
The Bahamas' 21st position in the *Climatescope* highlights that there is currently little activity in the clean energy space. Still, conditions are in place to unleash investment and deployment in this area. The island nation came in last in the Enabling Framework parameter largely due to its very low mark in the clean energy penetration category. To date, the Bahamas has no clean energy policies on its books. However, the government is in the process of developing regulations based on recommendations developed by its National Energy Policy Committee which, if effective, could raise its score in future years.

The country fared better in the parameter tracking clean energy investments and climate financing thanks to its low cost of sovereign debt (5.8%), and clean energy investments. From 2006 to 2011, about \$3.6m was disbursed into the solar and the biofuels sectors. In 2006, about \$2.6m went into financing a photovoltaic system to power LED lights in the runway of the March Harbour International Airport. Since then, a \$1m biofuel project secured funding. In 2011, the country's first biodiesel plant with 3.78mLpa began operations. The facility, which is owned by Bahamas Waste, allows for the conversion of up to 1 million gallons of waste cooking oil into biodiesel. Waste cooking oil is collected from local restaurants in Nassau, and the final biodiesel is used to fuel government trucks and vehicles.

Dependence on imported fossil fuels for power generation has contributed to spikes in electricity prices and

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (MW)

575MW Total



Source: Estimate based on data from Bahamas National Energy Policy and Grand Bahama Power Company for the 2011 period.

exacerbated energy security concerns. Since 2009, the government has received a total of \$3.5m in grants from the Inter-American Development Bank (IDB) to address energy security through clean energy and energy efficiency projects. The latest was a \$1m grant in 2010 aimed at promoting energy efficiency within the most vulnerable sectors of the Bahamian population through the provision of compact fluorescent light bulbs, and by raising awareness about energy conservation. Additionally, the Ministry of the Environment is developing a pilot program to assess solar energy use throughout the island to displace dirty and expensive oil-based generation. Given the dramatic fall in solar system costs, the high cost of energy, and insolation levels in the Bahamas, residential solar photovoltaics are likely to become an economical alternative, even without subsidies.

Comparatively, among its neighbors, the Bahamas scored well in Parameter III as it hosts an important set of low-carbon business value chains in the Caribbean. The country has companies providing solar equipment and installation services, wind project developers, and biomass feedstock suppliers. The Bahamas Renewable Energy Corp. is currently assessing the feasibility of constructing a wind farm to power a water desalination plant. Since the Bahamas has very minimal Greenhouse Gas Management Activities it placed 21st in Parameter IV.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
1	Biomass & Waste	Feedstock Supply ; Manufacturing Equipment; Power Generation; Project Development; System Integration
	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
1	Solar	Balance of Plant; Cells; Ingots; Installation ; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
1	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development ; Turbines

Source: Bloomberg New Energy Finance

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CARIBBEAN



Barbados

GDP¹: **\$6.5bn**

6-Year Economic Growth Rate²: **2%**

Population³: **0.26m**

Total Clean Energy Investments, 2006–2011⁴: **N/A**

Installed Power Capacity⁵: **239MW**

Renewable Share⁶: **N/A**

Total Clean Energy Generation⁷: **N/A**

Top Energy Authority:

Energy Division, Office of the Prime Minister

Bridgetown

OVERALL RANKING

20

OVERALL SCORE

0.58

PARAMETER	RANKING	SCORE
I. Enabling Framework	19	0.954
II. Clean Energy Investment & Climate Financing	17	0.579
III. Low-Carbon Business & Clean Energy Value Chains	22	0.234
IV. Greenhouse Gas Management Activities	22*	N/A

*Five countries did not have and/or did not disclose information pertinent to the indicators assessed on Parameter IV – Greenhouse Gas Management Activities. Thus, they were not assigned a score and were automatically ranked 22nd. These countries were: Barbados, Haiti, Suriname, Trinidad and Tobago, and Venezuela.

SUMMARY

Out of eight Caribbean island nations surveyed for *Climatescope*, Barbados ranked third with an overall score of 0.58. Among all nations, it finished 20th. Barbados, like most of its neighbors, relies heavily on imported fossil fuels for electricity generation. Recently, the country has taken important steps in the policy realm and launched creative initiatives aimed at advancing clean energy deployment. Barbados fared especially well in Parameter II and secured the most grants of any Caribbean nation for clean energy and energy efficiency initiatives. The low cost of locally available debt is also a positive sign for investors looking to back the mostly untouched clean energy space in Barbados.

Local players are also doing their part. In 2010, the country's sole power utility developed a pilot net metering program aimed at encouraging customers to generate their own clean power, which they can then sell to the grid. In 2011, the government's Energy Division created a clean energy and energy efficiency fund to support small distributed renewable generation projects. Looking ahead, Barbados has substantial motivation and opportunity to cut its dependence on imported fossil fuels by adding renewables to its power matrix and improving energy efficiency.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.

2. Source: Ibid. Notes: Calculation based on compounded annual growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: N/A refers to no clean energy investment commitments for the 2006–2011 period.

5. Source: Barbados Light & Power Company (BLPC), Annual Report 2010
Notes: Refers to the 2010 period.

6. Ibid. Notes: N/A refers to no renewable installed capacity.

7. Ibid. Notes: N/A refers to no renewable power generation available.

PARAMETERS SUMMARY

Like other Caribbean-island nations, Barbados depends on imported fossil fuels to power its \$6.5bn economy. This reliance impacts end consumers, particularly via electricity retail rates, which have spiked in recent years and averaged \$0.26/kWh in 2011. The opportunity to displace such high-priced energy is attractive to investors looking to back projects employing clean energy technologies, which become more price competitive.

Solar is a particularly interesting market, given conditions in sunny Barbados, and the sector's development could foster local energy security by cutting the need for fuel imports. Conscious of this potential, the government has instituted a pilot net metering program which allows electricity end-users to install rooftop photovoltaic systems or small wind turbines to meet their electricity needs, then sell excess capacity back to the national grid. Given the high residential electricity prices, the initiative should spur consumer interest. Due in part to this initiative, Barbados fared strongly in *Climatescope's* clean energy policy and price-attractiveness indicators.

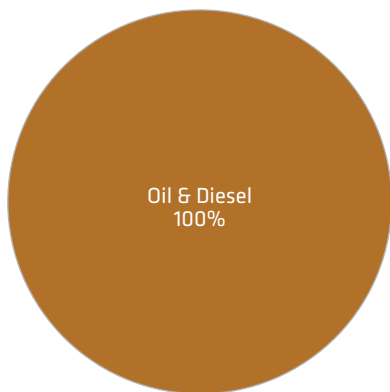
The island nation had its best performance in Parameter II thanks to grants received, as well as its low cost of debt (6.5%) relative to the overall regional average. In fact, when

benchmarked against GDP, Barbados actually placed second overall in grants disbursement behind only Nicaragua. From 2006–2011, Barbados received \$49m to develop programs to foster renewables, mainly from the Inter-American Development Bank. Grants have helped finance important local initiatives including the launch of the country's Energy Smart Fund in 2011. The fund provides rebates to residential customers for buying more efficient appliances. It also offers incentives to retailers to sell such appliances.

Barbados placed 22nd in both Parameters III and IV. Low-carbon businesses and clean energy value chains in the country are far from robust; there are only three types of clean energy service providers locally. Due to the lack of data available on Greenhouse Gas Management Activities, Barbados did not receive a score for Parameter IV, hurting its overall score. Still, with its high electricity prices, reliance on foreign fuel, new policies and strong natural resources, Barbados appears well positioned to host investment and deployment that accelerate a transition to a lower-carbon economy.

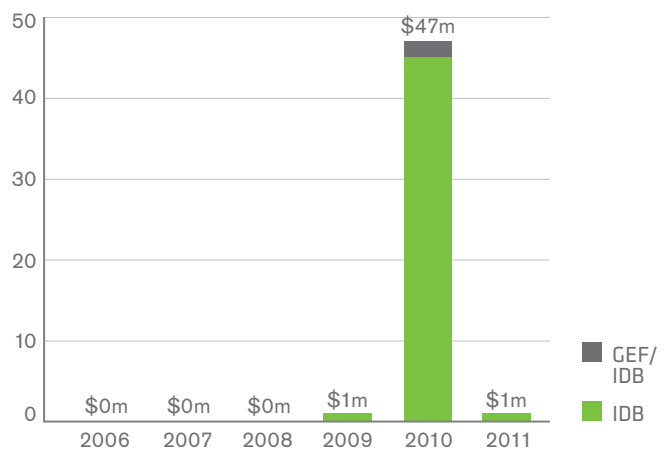
TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (MW)

239MW Total



Source: Bloomberg New Energy Finance, Barbados Light & Power Company (BLPC)

CLEAN ENERGY LOANS, GRANTS AND GRANT PROGRAMS BY DONORS, 2006–2011 (\$m)



Source: Bloomberg New Energy Finance
 Note: Donors: IDB is the acronym for Inter-American Development Bank. GEF is the acronym for Global Environmental Facility

CENTRAL AMERICA



Belize

GDP¹: **\$2.8bn**
 6-Year Economic Growth Rate²: **3%**
 Population³: **0.3m**
 Total Clean Energy Investments, 2006–2011⁴: **\$190m**
 Installed Power Capacity⁵: **136MW**
 Renewable Share⁶: **59%**
 Total Clean Energy Generation⁷: **311GWh**
 Top Energy Authority:
Ministry of Energy, Science & Technology and Public Utilities

Belmopan

OVERALL RANKING

17

OVERALL SCORE

0.99

PARAMETER	RANKING	SCORE
I. Enabling Framework	11	1.785
II. Clean Energy Investment & Climate Financing	18	0.567
III. Low-Carbon Business & Clean Energy Value Chains	25	0.125
IV. Greenhouse Gas Management Activities	17	0.448

SUMMARY

With an overall *Climatescope* score just below one (0.99), Belize came in 17th place among 26 countries. Belize is the smallest economy in Latin America and the Caribbean and the only English-speaking nation of Central America. The country fared well on Parameter I, thanks to the 59% renewable share of its total 136MW installed capacity. This represents the highest proportion of clean energy among all Latin American and Caribbean countries. Still, Belize meets more than a third of its electricity needs with imports from Mexico’s Comisión Federal de Electricidad (CFE) totaling 160GWh in 2010. These imports, combined with expensive diesel-powered generation, have contributed to high consumer power prices.

From 2006 to 2011, about 22MW of small hydro capacity was commissioned in Belize, making it the country’s flagship clean energy with 53MW of total installed capacity. During the same period, however, the bulk of investment commitments to clean energy went into the biomass & waste (\$55m) and biofuel (\$135m) sectors. Recent instability in the power sector, including the nationalization of vertically integrated utility Belize Electricity Limited (BEL), which had been controlled by Canadian company Fortis, may scare outside investors. Still, there is potential for clean energy deployment in the country, especially to replace the expensive fossil-based power plants.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid Notes: Calculation based on compounded annual growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance
 Notes: Cumulative investments for the period from 2006 to 2011.
 5. Source: Belize Electricity Limited (BEL) Notes: For 2010.
 6. Ibid.
 7. Ibid.

PARAMETERS SUMMARY

Belize received a 0.99 *Climatescope* score, coming in 17th place. The Central American nation imports more than a third of its electricity from neighboring Mexico. As a consequence, consumers pay the third highest tariffs among all the 26 countries assessed in this study at \$0.23/kWh on average.

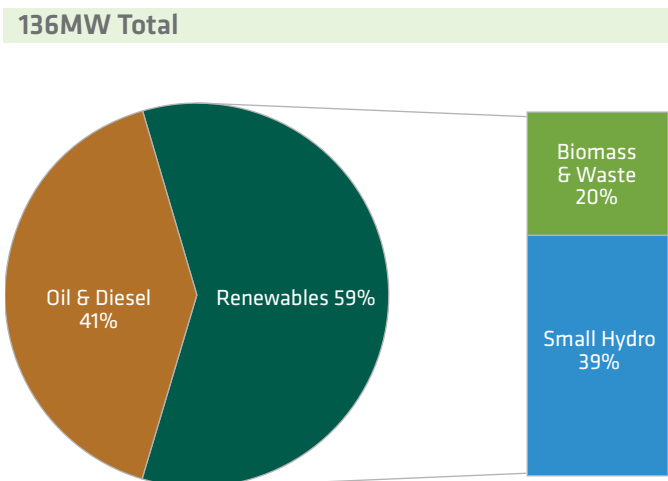
Belize Electricity Limited (BEL), a vertically integrated public utility, controls distribution and transmission in the country while meeting 58% of Belize's generation needs. Until 2011, BEL was privately held by Canadian utility Fortis. In June of that year, the Belizean government re-nationalized BEL, expropriating Fortis' 70% stake. The nationalization of BEL, the lack of clean energy policy framework and high sovereign cost of debt (13.2%) may inhibit future investment in Belize's clean energy market.

With 59% of its 136MW installed power capacity accounted for by renewables, the country received the highest possible mark on this indicator. Small hydro is

responsible for the lion's share with a total 53MW installed. A 27.5MW biomass plant owned by Belize Cogeneration Energy Limited (BELCOGEN) has been another important source of low-carbon electricity since its commissioning in 2009. The financing of BELCOGEN's biomass plant represents 29% of the \$190m that was committed to clean energy from 2006 to 2011. The other \$135m went to the acquisition and development of a biofuel project.

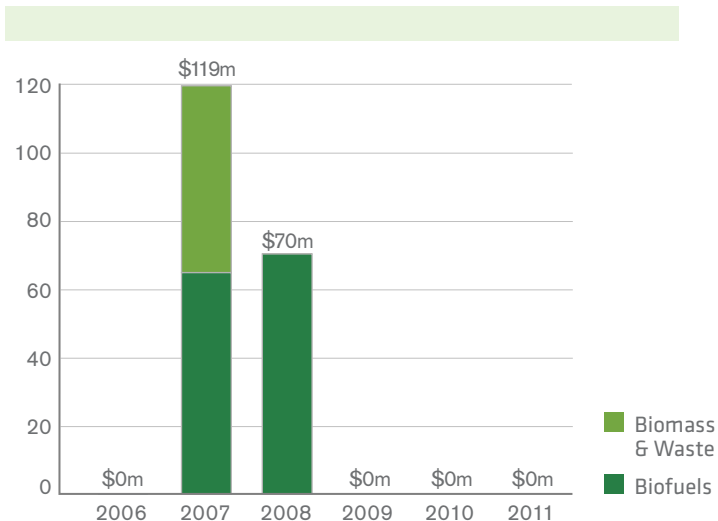
Belize had its worst performance on Parameter III, since there are only two subsectors of the biomass value chain active in the country. The Central American nation also has had minimal activity on managing greenhouse gases, with a total offset project volume of 189.6 tCO2/\$m.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (MW)



Source: Bloomberg New Energy Finance, Belize Electricity Limited

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance

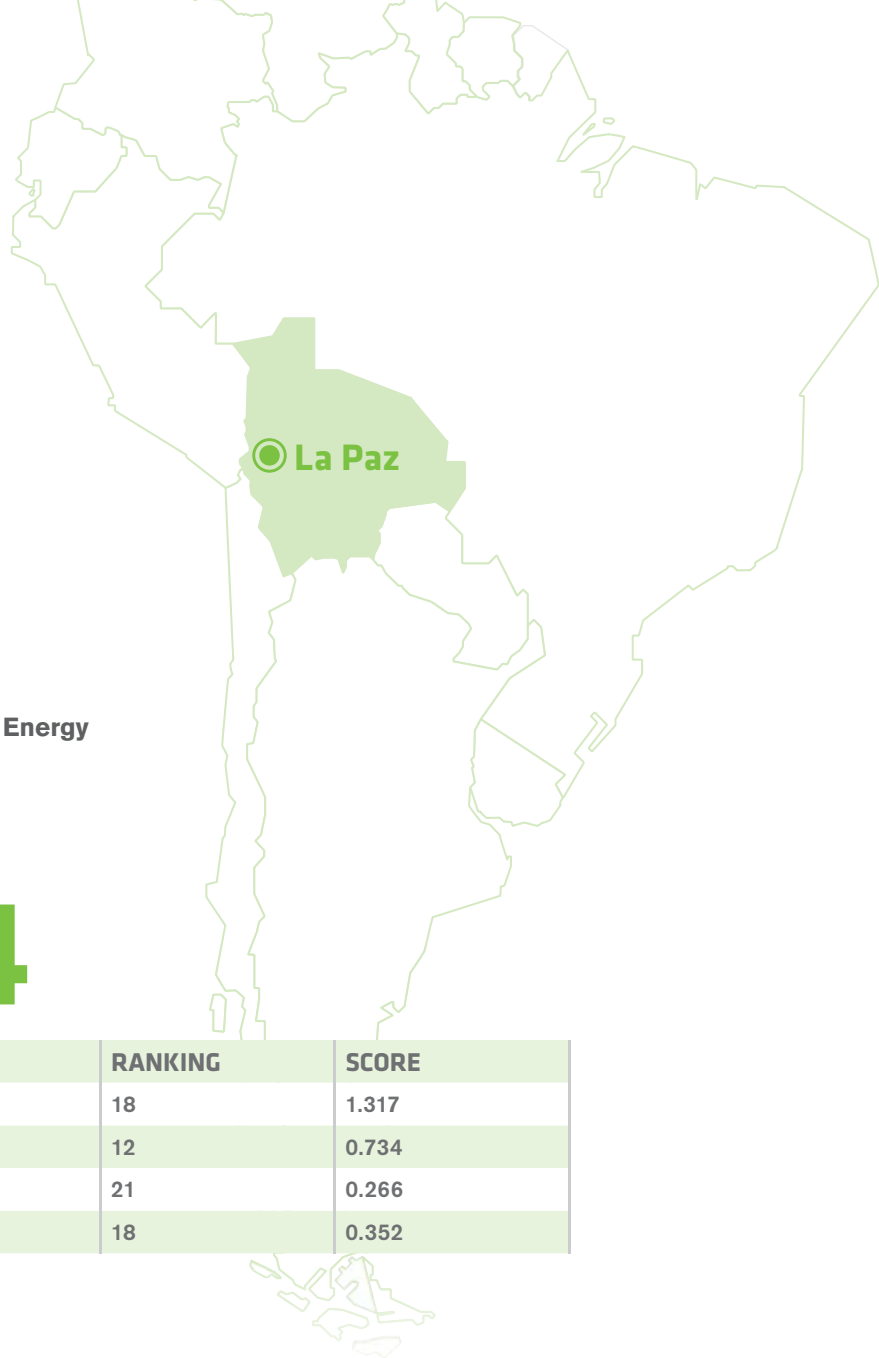
Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

SOUTH AMERICA



Bolivia

GDP¹: **\$50.9bn**
 6-Year Economic Growth Rate²: **6%**
 Population³: **10m**
 Total Clean Energy Investments, 2006–2011⁴: **N/A**
 Installed power capacity⁵: **1.7GW**
 Renewable share⁶: **20%**
 Total clean energy generation⁷: **1,369GWh**
 Top Energy Authority: **Ministry of Hydrocarbons and Energy**



OVERALL RANKING

19

OVERALL SCORE

0.84

PARAMETER	RANKING	SCORE
I. Enabling Framework	18	1.317
II. Clean Energy Investment & Climate Financing	12	0.734
III. Low-Carbon Business & Clean Energy Value Chains	21	0.266
IV. Greenhouse Gas Management Activities	18	0.352

SUMMARY

Bolivia obtained a 0.84 overall *Climatescope* score placing 19th among 26 nations. The country saw little to no advancement in clean energy investment, policy or deployment from 2006 through 2011, apart from rural electrification initiatives.

While 68% of Bolivia's total 1.6GW installed power capacity is fossil based, the country has a significant share (20%) of renewable capacity, mostly in the form of small hydro and biomass projects. Power market liberalization efforts have been mostly unsuccessful. The country seems to be moving towards greater government intervention in the power sector, as evidenced by nationalization in 2012 of grid operator Red Elctrica.

Bolivia fared well on Parameter II largely because it has the region's third most robust green microfinance sector, behind only Nicaragua and Peru. Six out of 30 microfinance institutions in Bolivia offer low-income residents or micro, small and medium enterprises some type of green financial product. Bolivia offers substantial opportunity for clean energy growth as only three quarters of its citizens are served by the national power grid, South America's lowest rate. Green microfinance is poised to play an important role in helping expand energy access from the use of clean distributed generation, particularly in remote rural areas.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: N/A refers to no cumulative clean energy investments from 2006 to 2011.
 5. Source: Autoridad de Fiscalización y Control Social de Electricidad Notes: For 2010.
 6. Ibid.
 7. Source: Autoridad de Fiscalización y Control Social de Electricidad and Comité Nacional de Despacho de Carga Notes: For 2010.

PARAMETERS SUMMARY

Bolivia's overall score was depressed by a weak performance in three out of four parameters due to insignificant growth in renewable capacity, lack of clean energy policies, underdeveloped clean energy value chain and limited activity to curb greenhouse gases.

As South America's largest natural gas exporter it is unsurprising that Bolivia relied on the fuel for approximately 60% of its electricity generation, 6,970GWh in 2010. Still, renewables play an important role in the country's power matrix, representing 20% of 1.6GW installed capacity.

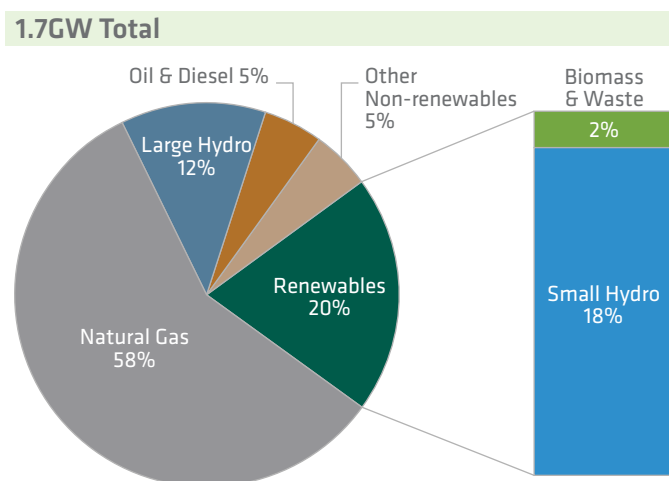
Bolivia has the lowest electrification rate in South America, with only 76% of the population with grid access. The Electricidad para Vivir con Dignidad program has contributed to install over 660kW solar photovoltaic systems in more than 40 municipalities across the country.⁸

Bolivia fared well in Parameter II thanks to a robust green microfinance sector. Six organizations offering green products have benefited more than 1,500 families, disbursing around \$0.2m. Still, Bolivia lacked large-scale investments in

clean energy projects or companies from 2006 to 2011. The only commitments came as grants from multilateral development organizations: European Commission (approximately \$8.2m), World Bank (\$2.6m), and Inter-American Development Bank (\$0.3m).

Bolivia's low-carbon value chain remains underdeveloped with companies active in two biomass subsectors and only one in small hydro. The country also received a low score for its efforts to manage greenhouse gases, since it displays a very small offset project volume and has no companies reporting emissions and efficiency improvement activities.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)



Source: Bloomberg New Energy Finance, Autoridad de Fiscalización y Control Social de Electricidad (AE)

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

30 MFIs

How many offer green micro loans:

6 MFIs

Average costs of green micro loans:

9%

Total amount of green micro loans disbursed:

\$201,014

Number of green micro borrowers:

1,582

Green MFI Organizations:

Asociación Nacional Ecueménica de Desarrollo (ANED)

Banco FIE

CIDRE

Fundación Profin

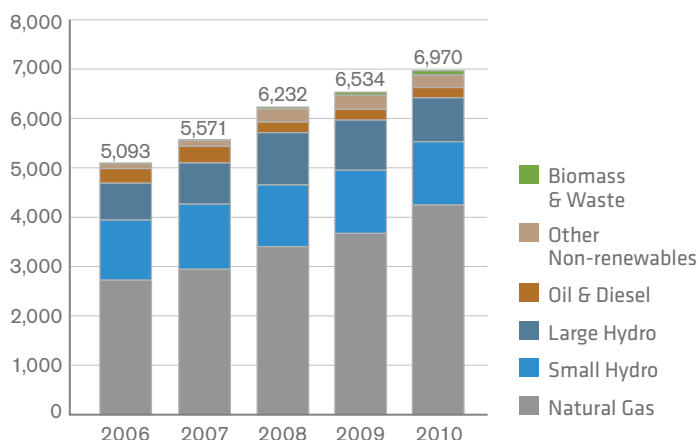
HIVOS

Banco Los Andes

Source: Bloomberg New Energy Finance

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 30 MFIs in Bolivia, 25 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Autoridad de Fiscalización y Control Social de Electricidad (AE), Comité Nacional de Despacho de Carga (CNDC)

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

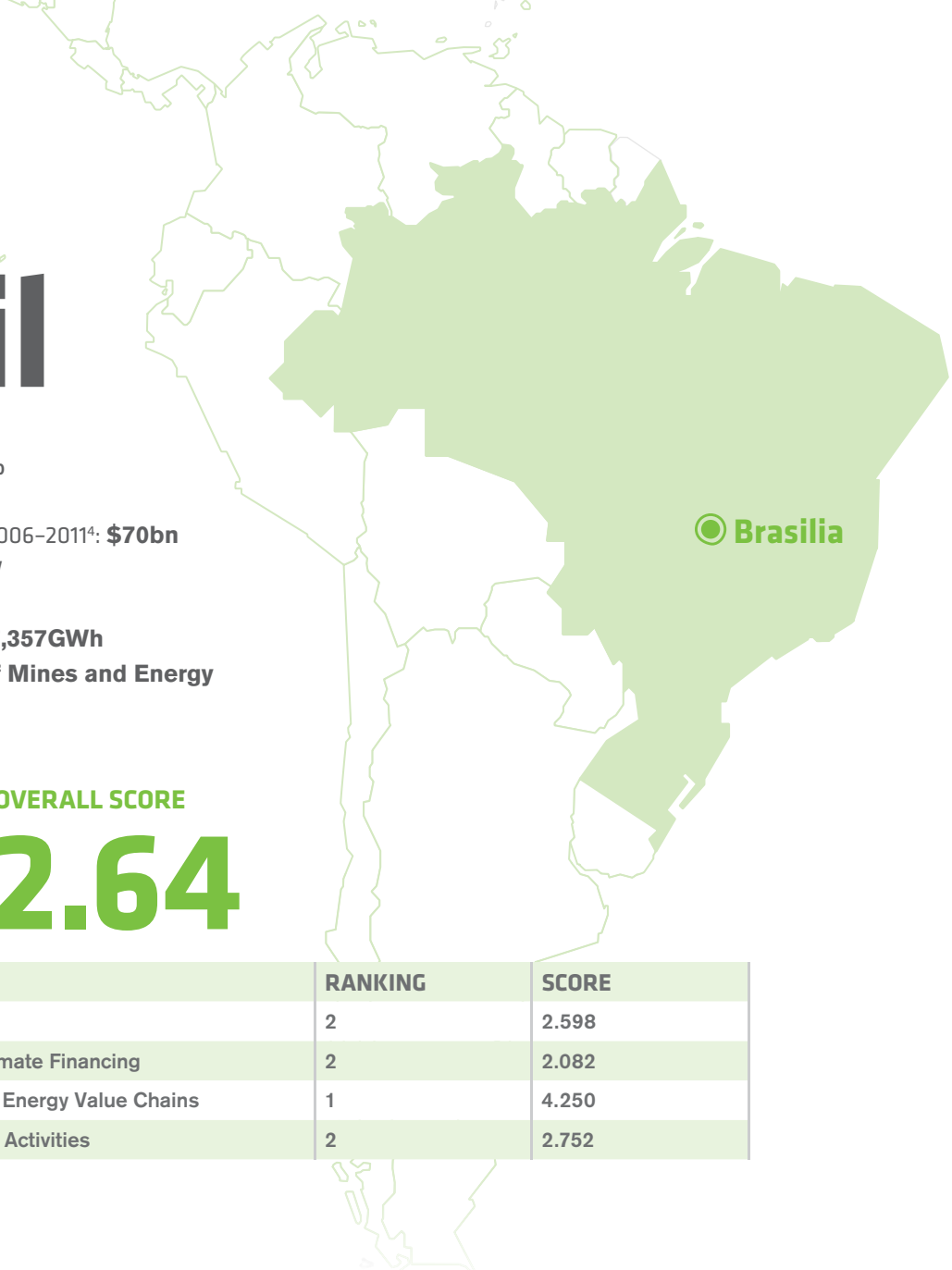
8. Projects include Proyecto de Infraestructura Descentralizada para la Transformación Rural (IDTR), KFW and EURO-SOLAR.

SOUTH AMERICA



Brazil

GDP¹: **\$2,294.2bn**
 6-Year Economic Growth Rate²: **5%**
 Population³: **195.4m**
 Total Clean Energy Investments, 2006–2011⁴: **\$70bn**
 Installed Power Capacity⁵: **116GW**
 Renewable Share⁶: **12%**
 Total Clean Energy Generation⁷: **47,357GWh**
 Top Energy Authority: **Ministry of Mines and Energy**



OVERALL RANKING

1

OVERALL SCORE

2.64

PARAMETER	RANKING	SCORE
I. Enabling Framework	2	2.598
II. Clean Energy Investment & Climate Financing	2	2.082
III. Low-Carbon Business & Clean Energy Value Chains	1	4.250
IV. Greenhouse Gas Management Activities	2	2.752

SUMMARY

In this first edition of *Climatescope*, Brazil emerges at the top with an overall score of 2.64. The country performed strongly in all four of the parameters, finishing no lower than second in any. Brazil is larger than the other nations of Latin America and the Caribbean in terms of population and GDP. This gap both helps and hurts the country in terms of its overall score. It explains why Brazil has so many pieces of the various clean energy value chains in place and scored so highly on Parameter III. But it subtracts on Parameter II – investment and finance – which is calculated by comparing investment in clean energy against overall GDP.

From 2006 to 2011, Brazil attracted \$70bn for clean energy companies and projects, half of which went toward biofuels. In 2011, however, wind outpaced biofuels attracting \$8.8bn in investments. Wind will likely continue to be Brazil’s leading growth sector in the short term due to government-organized reverse auctions for power contracts, fiscal incentives, cheap local financing, and a robust wind manufacturing value chain.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Agência Nacional de Energia Elétrica (ANEEL) Notes: For 2011.
 6. Ibid.
 7. Ibid.

I. ENABLING FRAMEWORK

Ranking 2 / Score 2.598

Brazil scored 2.60 on the Enabling Framework parameter, placing second among all nations, behind Panama. The country fared especially well on the clean energy policy, power sector structure, and power demand growth rate indicators. Brazil has in the past met half its light-vehicle fuel needs with sugar-based ethanol, and this boosted its standing in the clean energy penetration category. On the other hand, Brazil's score was depressed by its performance on indicators examining its share of renewables relative to installed capacity and generation. Had this score been calculated in absolute terms Brazil would have finished top of the list.

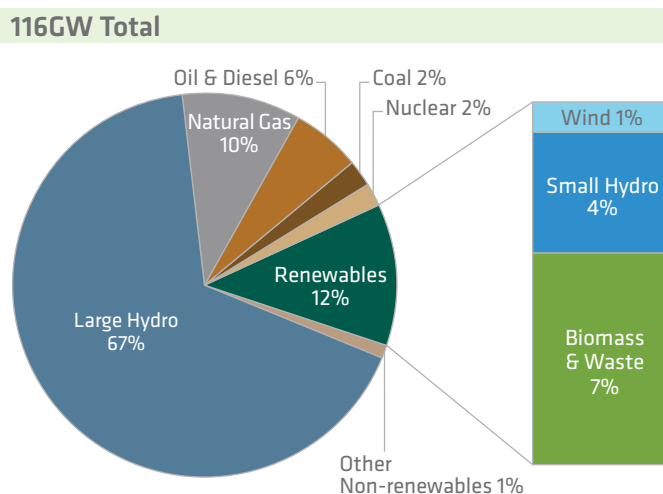
Compared with its peers Brazil has the most diverse set of clean energy policies with at least one incentive in place for nearly every one of the categories examined. Experts consulted for this study considered Brazil's policies to be relatively ambitious and effective, especially for biofuels. Last year, Brazil's reverse auctions for wind power contracts grabbed international headlines for attracting exceptionally low bids. However, it remains to be seen if these will result in as much new wind capacity as government officials have touted.

In absolute terms, Brazil has 13.9GW of clean energy installed capacity – 3GW more than all the other Latin American and Caribbean countries combined. This represents 12% of the country's 116GW installed power capacity. Biofuels account for 19% of Brazil's 120bn-liter liquid fuel matrix. While spot prices for electricity in Brazil are relatively low, prices paid by the end user are quite high,

averaging, \$0.16/kWh in part due to taxation. Such exorbitant prices make rooftop photovoltaic systems potentially attractive for Brazilian homeowners.

Brazil's electrification rate is relatively high at 95%. Still, approximately 9.7m Brazilians have no access to reliable power. To counter that, the federal government has instituted the Luz Para Todos Program which uses small photovoltaic systems and micro hydro facilities to electrify Brazilian homes in remote parts of the country.

INSTALLED POWER CAPACITY BY SOURCE, 2011 (GW)



Source: Bloomberg New Energy Finance, Agência Nacional de Energia Elétrica (ANEEL).
Note: In Brazil, small hydro only includes hydro plants with capacity up to 30MW.

KEY POLICIES

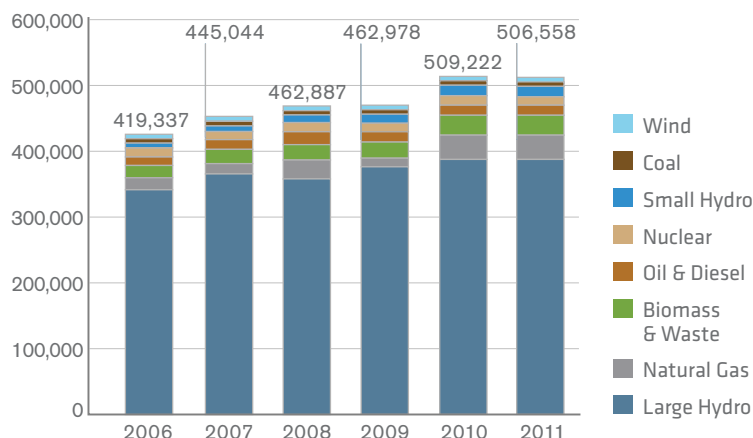
Qty	Category
	Available Policy Type; Unavailable Policy Type
4	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other*
1	Equity Finance Grants; Incubators; Infrastructure funds; Other
1	Debt Finance Funding; Export trade credit; Green bonds; Other
3	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
0	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

*(Other) refers to two energy market policies: São Paulo state ban on manual sugar cane harvesting and Brazil's anhydrous ethanol storage requirements.

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

ANNUAL ELECTRICITY GENERATION BY SOURCE, 2006-2011 (GWh)



Source: Bloomberg New Energy Finance, Agência Nacional de Energia Elétrica (ANEEL).

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

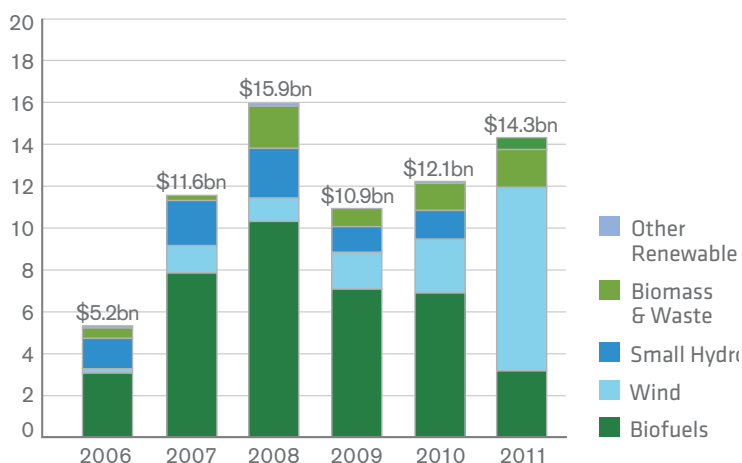
II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 2 / Score 2.082

Brazil placed 2nd in this parameter with a score of 2.08. From 2006 to 2011, the country attracted a cumulative total \$70bn in clean energy investment or 77% of all funds committed to the Latin America and the Caribbean's low-carbon economy. Historically, biofuels took the lion's share of the funds, but since 2011 wind has taken the lead. In 2011, a total of \$8.8bn was invested in Brazilian wind compared with \$3.2bn in biofuels (see figure below).

To date, Banco Nacional de Desenvolvimento Econômico e Social (BNDES) has funded about \$18bn in local clean energy projects and companies. Offering below-market rates and extremely favorable conditions, the Brazilian state-development bank has effectively monopolized lending to the country's low-carbon economy. For their part, foreign governments and development finance institutions such as the Inter-American Development Bank (IDB), Kreditanstalt für Wiederaufbau (KfW), the Global Environment Facility (GEF), and the International Climate Initiative have offered \$1bn in grants to clean energy development in Brazil – more than BNDES and the Brazilian government combined have provided in grants.

ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$bn)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

36 MFIs

How many offer green micro loans:

9 MFIs

Average costs of green micro loans:

2.6%

Total amount of green micro loans disbursed:

\$71,160,000

Number of green micro borrowers:

33,708

Green MFI Organizations:

Agência do Crédito

ASCOOB Central

Banco do Vale

Banco do Planalto Norte

BANCRI

CEADE

ICC MAU-CE

Lander

SEBRAE

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 36 MFIs in Brazil, 30 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

LOCAL INVESTMENTS BY LOCAL PLAYERS

2011 Total **\$7,937m**

Top Three Local Investors

1st	BNDES	\$4,949m
2nd	Banco Itau BBA SA	\$288m
3rd	Banco do Brasil SA	\$44m

Source: Bloomberg New Energy Finance.

Note: Figures only include investments in new build clean energy projects in 2011, do not include refinancing or acquisitions. BNDES is Banco Nacional de Desenvolvimento Econômico e Social.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 1 / Score 4.250

Brazil's 4.25 score in the Low-Carbon Business and Clean Energy Value Chains parameter was the highest received by any country for any parameter. The sheer size and level of development of the Brazilian economy proved to be an asset here. In addition, BNDES' local-content rules, which stipulate that projects must use domestically made equipment to access the bank's low cost capital, have spurred a local manufacturing build out. Today, Brazil has a complete value chain for three of six clean energy subsectors: biofuels, biomass & waste, and small hydro. If Brazil had capacity to manufacture large scale fiberglass blades, its wind value chain would be complete as well. Anticipating growth, the country's solar value chain is starting to develop. Geothermal is the only technology that has no meaningful value chain in Brazil because the country has no geothermal resource. Given the build out that has taken place to date, it should come as no surprise that Brazil is looking beyond its borders for export opportunities across Latin America and the Caribbean.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
7	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical; Contract Maintenance; Contract Manufacturing ; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
3	Marketing Services	Distributor; Market Research; PR Company
6	Financial & Legal Services	Banking-Corporate; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance ; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 2 / Score 2.752

Looking solely at Brazil's greenhouse gas (GHG) management activities, the country scored 2.75 placing second behind Mexico. In terms of carbon offset project development, the two countries are tied atop the list. No fewer than six of the 10 largest Clean Development Mechanism (CDM) projects in Latin America and the Caribbean are located in Brazil, including a single 38MT adipic acid reduction project. Brazil's high overall score was also aided by the country's relatively low risk for CDM development and a strong presence of CDM validators. Finally, Brazil like Mexico boasts a relatively high number of corporations that are undertaking

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
5	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
5	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
4	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance ; Power Purchase; Turbines
6	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development ; Raw Feedstock (solar-grade silicon); Wafers
7	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
●	Corporate Finance
●	Funds
●	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

GHG management efforts. Brazil has 57 companies with emissions reductions initiatives in place, according to company disclosures in annual reports or company sustainability initiatives. An equal number of companies (57) have taken on energy efficiency initiatives. Key global-Brazilian companies with GHG management initiatives include Petrobras, Vale SA, Banco Itaú, Bradesco, Banco do Brasil, Cosan, Embraer and Natura. This suggests climate change impact is being incorporated into corporate decision making at these organizations and that local public policies are not necessarily driving their actions.

SOUTH AMERICA



Chile

GDP¹: **\$299.6bn**
 6-Year Economic Growth Rate²: **6%**
 Population³: **17m**
 Total Clean Energy Investments, 2006–2011⁴: **\$4.5bn**
 Installed Power Capacity⁵: **17GW**
 Renewable Share⁶: **6%**
 Total Clean Energy Generation⁷: **3,195GWh**
 Top Energy Authority: **Ministry of Energy**



OVERALL RANKING

5

OVERALL SCORE

1.72

PARAMETER	RANKING	SCORE
I. Enabling Framework	6	1.997
II. Clean Energy Investment & Climate Financing	16	0.591
III. Low-Carbon Business & Clean Energy Value Chains	2	2.813
IV. Greenhouse Gas Management Activities	4	2.336

SUMMARY

In this first edition of *Climatescope*, Chile ranks fifth with a 1.72 overall score, slightly below Peru. It fared well in three of four parameters, finishing at or above sixth position in all but Parameter II. In absolute terms, Chile attracted more funds (\$4.5bn) for its low-carbon economy from 2006 to 2011 than any other nation in the region except Brazil and Mexico. Half of the total went toward wind projects and companies.

As the world’s largest copper producer and with a rapidly growing economy, Chile is hungry for energy. Spectacular economic growth, coupled with very high power prices, makes the country an attractive market for developers and investors.

Chile is a pioneer in power market liberalization and was one of the region’s first countries to institute a clean energy mandate, which requires that 10% of its electricity is generated from renewable sources by 2024. As a result, it fared well in the *Climatescope* policy and regulation category and scored high on Parameter I. The country performed especially well in Parameter III, assessing the availability of clean energy manufacturers, servicers, and finance providers thanks to the size of its economy and its well established capital markets. Currently, small hydro is Chile’s flagship renewable energy source, but solar and geothermal are poised for growth.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Comisión Nacional de Energía (CNE) Notes: For 2011.
 6. Ibid.
 7. Ibid.

I. ENABLING FRAMEWORK

Ranking 6 / Score 1.997

Chile scored 2.00 on the Enabling Framework parameter, ranking sixth behind Nicaragua. The country fared particularly well on three indicators comprising policy and regulation. It performed within the regional average both in the price attractiveness and market size expectation categories. However, its overall Parameter I score was depressed by its poor performance in the clean energy penetration category.

Chile is a pioneer in power sector liberalization and was one of the first countries in the region to implement a clean energy mandate. In addition to its 5% renewable energy obligation (set to rise 0.5% per year through 2025) Chile offers tax incentives for renewables. Policy experts consulted for this study considered Chile's clean energy policy framework to be moderately ambitious and successful. This is poised to change should Chile approve a recent proposal that would reset the obligation to 20% by 2025.

While average power prices in Chile are close to the regional median, prices in the north are higher due to a reliance on natural gas and high demand from mining companies.

KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
1	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
1	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other*
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

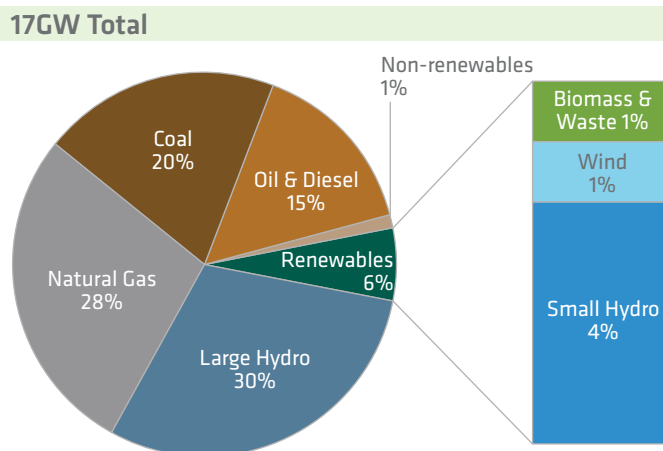
*(Other) refers to one tax based incentive: transmission tax exemption for clean energy power sources.

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

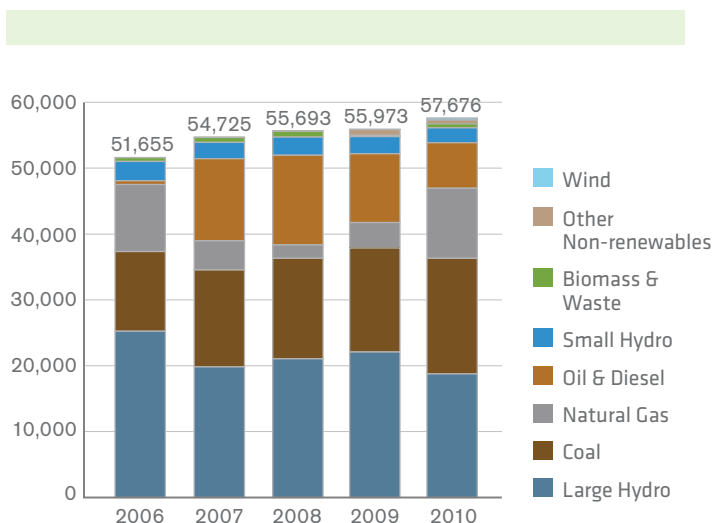
The country has 843MW of clean energy installed, representing 6% of total capacity. Clean energy capacity installations grew 11.4% from 2006 to 2011 and generation grew at a similar pace. With a 97% electrification rate, opportunities for clean energy market deployment are unlikely to focus on expanding energy access for citizens. Rather, they will be contingent on Chile maintaining strong overall power demand growth.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (GW)



Source: Bloomberg New Energy Finance, Comisión Nacional de Energía

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Comisión Nacional de Energía.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 16 / Score 0.591

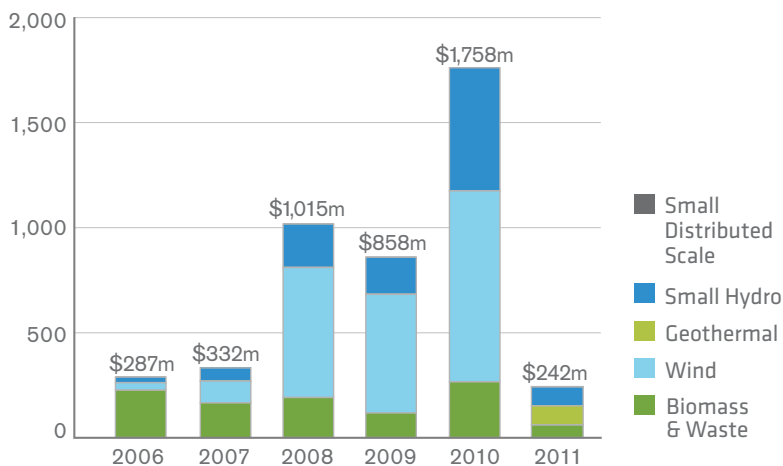
Chile scored its lowest (0.59) on Parameter II, placing 16th among all 26 nations. From 2006 to 2011, the country attracted a cumulative \$4.5bn in clean energy investments, or 5% of the total funds committed to the entire region. However, when levelized by Chile's \$299.6bn economy, the total amount of investments did not translate into a high score. Thanks to outstanding natural resources and a favorable regulatory environment, clean energy investments grew 6% from 2006 to 2010. Still, this has not kept pace with the country's overall economic growth rate, and investment dropped sharply from a peak of \$1.8bn in 2010 to a low of \$242m in 2011.

To date, the European Investment Bank and Credit Agricole Groupe have been lead arrangers for local projects and companies, providing \$82m and \$63m, respectively.

Local financiers have played a comparatively smaller role, disbursing \$59m, or 13%, of the total for clean energy. The exception has been the Santiago-based government agency, Corporación de Fomento de la Producción (CORFO), which has disbursed around \$12m and is one of the principal incubators for clean energy start-ups in the region.

There are no reported green microfinance institutions active in Chile, a factor which hurt its score on this parameter. On the other hand, Chile's score was boosted by its relatively low sovereign cost of debt (5.2%) compared with its peers.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

LOCAL INVESTMENTS BY LOCAL PLAYERS

2011 Total **\$59m**

Top Local Investors

1st	Comasa SA	\$42m
2nd	Solarpack Corporación Tecnológica	\$5m

Source: Bloomberg New Energy Finance.

Note: Figures only include investments in new build clean energy projects in 2011, do not include refinancing or acquisitions.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 2 / Score 2.813

Chile's 2.81 score for low-carbon and clean energy value chains was the second highest received by any nation. The country's status as one of the region's most developed economies with a well-functioning capital market had a positive overall impact here. Chile has at least one player operating locally in each subcategory of clean energy service provider including banks, corporate finance institutions and VC/PE funds. The country hosts two relatively robust clean energy value chains, biomass & waste and geothermal, though no single chain is entirely complete. Given the expected growth in solar installations, more players in the solar value chain are likely to be in place soon. Additionally, there is at least one local service provider for at least eight different categories in Chile (see figure below).

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
2	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor; Market Research; PR Company
5	Financial & Legal Services	Banking-Corporate; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
4	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
4	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
4	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
2	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
6	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
●	Funds
●	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 4 / Score 2.336

With a 2.34 score, Chile scored well in the Greenhouse Gas Management Activities parameter, placing fourth. It achieved a relatively high score for carbon offset projects, ranking second on the strength of low emissions intensity. In all, four of the top 20 Clean Development Mechanism (CDM) projects in the region are located in Chile, including sizable landfill gas and nitric acid projects. Chile is one of only six countries in the region with companies disclosing

Greenhouse Gas Management Activities. A total of seven companies disclose this information including: Enersis (electricity), LAN (airlines), Entel (telecom), Aguas Andinas (water utility), Banco Bilbao (finance), and Masisa (forest products). Survey respondents said it was relatively easy to develop projects in Chile, but responses for this indicator did not receive a score due to a small sample size.

SOUTH AMERICA

Colombia

GDP¹: **\$472bn**

6-Year Economic Growth Rate²: **5%**

Population³: **46m**

Total Clean Energy Investments, 2006–2011⁴: **\$1.1bn**

Installed Power Capacity⁵: **13GW**

Renewable Share⁶: **4%**

Total Clean Energy Generation⁷: **2,543GWh**

Top Energy Authority: **Ministry of Energy and Mines**

● **Bogotá**

OVERALL RANKING

7

OVERALL SCORE

1.63

PARAMETER	RANKING	SCORE
I. Enabling Framework	3	2.201
II. Clean Energy Investment & Climate Financing	14	0.669
III. Low-Carbon Business & Clean Energy Value Chains	7	1.625
IV. Greenhouse Gas Management Activities	5	1.927

SUMMARY

With an overall *Climatescope* score of 1.63, Colombia finished seventh among the 26 countries. The nation ranked among the top 5 in two of the four parameters assessed: Enabling Framework and Greenhouse Gas Management Activities. Still, its overall performance was depressed due to a low score (0.67) in the parameter tracking clean energy investments and climate financing.

Colombia lags behind its peers in terms of the availability of green microfinance, with just three organizations surveyed active in that space. Last year, \$50.4m was invested into the country's clean energy projects and companies, a 74% drop from the prior year. Still, from 2006 to 2011 cumulative clean

energy investment reached \$1.06bn. Historically, the leading clean energy sectors have been biofuels and small hydro, capturing 48% and 37% of cumulative investment, respectively.

Small hydro is currently Colombia's flagship clean power generation technology, representing 519MW of the country's total 13GW installed capacity and about 5% of total electricity generation. Though Colombia only has two clean energy policies on its books, biodiesel production in the country has more than doubled since 2009 and is expected to play an even larger role because the country has established a blending mandate for the fuel.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.

2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.

5. Source: Compañía de Expertos en Mercado SA ESP Notes: For 2010.

6. Ibid.

7. Ibid.

I. ENABLING FRAMEWORK

Ranking 3 / Score 2.201

With a 2.20 score for the Enabling Framework parameter, Colombia placed third behind Panama and Brazil. It fared well in all three indicators comprising the policy & regulation category.

The astounding growth rate of its biofuel production capacity has lifted its overall performance in terms of clean energy penetration.

Colombia's 0.85bn-liter biodiesel capacity is modest compared to powerhouses such as the US and Brazil, but the country has managed to more than triple production since 2008 thanks to the successful implementation of a biofuels policy framework, which requires an average 7% biofuel blend for both ethanol and biodiesel. Since 2002, a number of tax-based incentives have been enforced, including income tax exemptions for wind and biomass generators and an import duty exemption on equipment for activities that generate carbon credits. Despite a small number of policies, Colombia received an average mark, 2.9 out of 5, for the clean energy policy indicator thanks to its biofuel policy framework.

KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
1	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
1	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

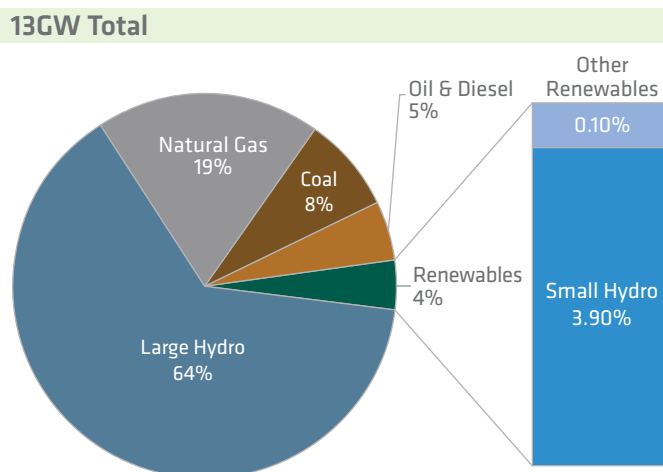
Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

Only about 4% of Colombia's 13GW of installed power capacity is renewable. Still, clean energy installations grew by 12% from 2009 to 2010. The growth rate for actual renewable generation grew at an even faster 14% pace and totaled 2,543GWh in 2010, slightly more than was generated in Mexico, a much larger economy.

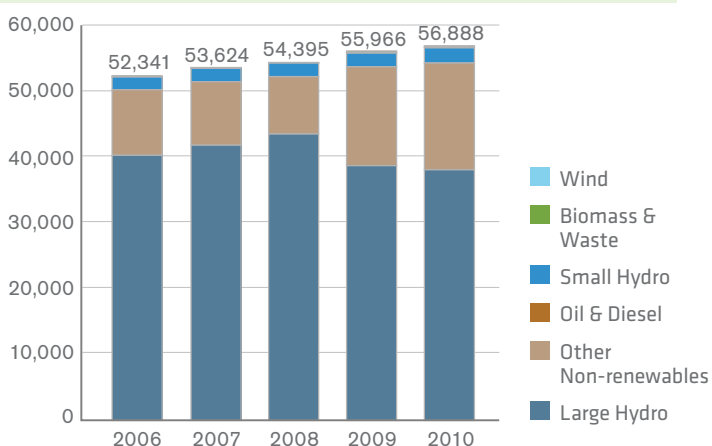
Colombia is the region's fifth largest economy in terms of GDP but despite its renewable growth, it does not offer the most attractive conditions for clean energy investments due to its low power demand growth rate and lower electricity prices at both the retail and wholesale levels.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)



Source: Bloomberg New Energy Finance, Compañía de Expertos en Mercado SA ESP
Note: Other renewables include biomass & waste and wind capacity.

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Compañía de Expertos en Mercado SA ESP
Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

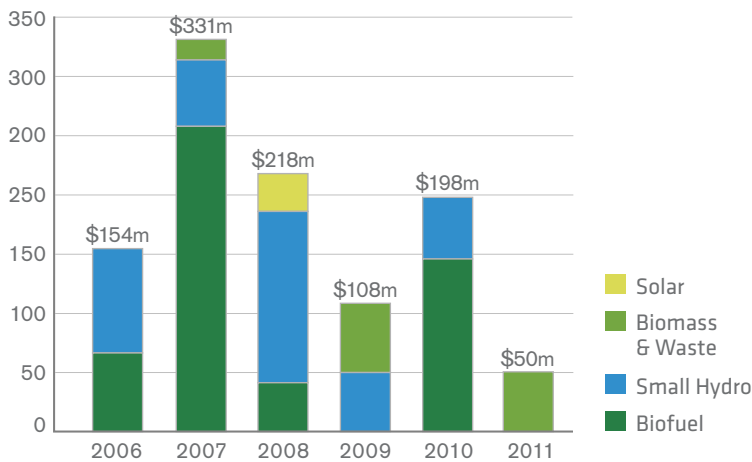
Ranking 14 / Score 0.669

Colombia scored poorest on Parameter II largely because of relatively small investment in its low-carbon sector. Still, Colombia has the region's lowest sovereign cost of debt, together with Trinidad and Tobago (3.8%), an attractive feature to risk-averse investors.

From 2006 to 2011, clean energy investment in Colombia totaled \$1.06bn, with half going to biofuels. Asset (project) finance accounted for nearly all investments, the majority carried out by private banks such as BBVA and Banco de Bogotá. Of 29 microfinance institutions (MFIs) operating in Colombia, only three offer low-income borrowers or micro, small, medium and large enterprises green financial products. In all, these green MFIs have made \$1.2m in green micro loans at an average cost of 3.5%.

To date, Colombia has secured \$14m in grants from development finance institutions. The Inter-American Development Bank disbursed 54% of that. In 2011 the only grant received was \$2.7m from the Global Environment Facility (GEF) to help develop local geothermal potential – an untapped resource in Colombia.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

29 MFIs

How many offer green micro loans:

3 MFIs

Green MFI Organizations:

Activos y Finanzas SA

Banco Ixex

FUNDESMAG

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 29 MFIs in Colombia, 20 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

LOCAL INVESTMENTS BY LOCAL PLAYERS

2011 Total

\$50m

Top Local Investor

1st

Ingenio Risaralda

\$50m

Source: Bloomberg New Energy Finance.

Note: Figures only include investments in new build clean energy projects in 2011, do not include refinancing or acquisitions.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 7 / Score 1.625

Local manufacturing and supply chains for clean energy goods and services are relatively underdeveloped in Colombia, considering the country's size. Finance providers are the most established with a handful of banks supportive of clean energy operating locally, including Bancolombia.

Colombia has at least one active sub-sector for each of the six clean energy value chains excluding geothermal, but this will probably change as the GEF grant progresses to help develop the geothermal sector. The biomass & waste and wind sectors have by far the most robust value chains, with at least three sub-sectors available locally. The availability of clean energy service providers is limited to four (see illustration).

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical ; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor ; Market Research; PR Company
2	Financial & Legal Services	Banking-Corporate ; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance ; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers ; Retailing/IOC
3	Biomass & Waste	Feedstock Supply ; Manufacturing Equipment; Power Generation ; Project Development ; System Integration
	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
2	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance ; Power Purchase; Turbines
2	Solar	Balance of Plant; Cells; Ingots; Installation ; Modules; Project Development ; Raw Feedstock (solar-grade silicon); Wafers
3	Wind	Bearings; Blades; Construction/Installation ; Gearboxes; Generators; O&M; Power Generator ; Project Development ; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
●	Corporate Finance
	Funds
	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects. Check means there is at least one institution active in that segment in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 5 / Score 1.927

Colombia distinguished itself in terms of Greenhouse Gas Management Activities largely due to a strong performance on the indicators assessing the risk for Clean Development Mechanism (CDM) project development, and the local presence of CDM validators.

The region's two largest economies, Brazil and Mexico, each have 13 CDM validators operating locally. Colombia has a total of 12, which is impressive given its size. Still,

survey respondents described it as fairly difficult to develop CDM projects in Colombia (though this was not accounted for in the overall score, due to a small sample size).

Colombia is one of six *Climatescope* countries featuring companies that have greenhouse gas management monitoring activities in place. Oil producer Ecopetrol, utility Interconexión Eléctrica and food producer Colombina all have such programs in place.

CENTRAL AMERICA



Costa Rica



GDP¹: **\$55bn**
 6-Year Economic Growth Rate²: **5%**
 Population³: **4.6m**
 Total Cumulative Clean Energy Investments, 2006–2011⁴: **\$1bn**
 Installed Power Capacity⁵: **2.6GW**
 Renewable Share⁶: **22%**
 Total Clean Energy Generation⁷: **2,806GWh**
 Top Energy Authority:
Ministry of Environment, Energy and Telecommunications

OVERALL RANKING

8

OVERALL SCORE

1.47

PARAMETER	RANKING	SCORE
I. Enabling Framework	15	1.460
II. Clean Energy Investment & Climate Financing	3	1.460
III. Low-Carbon Business & Clean Energy Value Chains	5	1.828
IV. Greenhouse Gas Management Activities	11	1.309

SUMMARY

With an overall *Climatescope* score of 1.47 Costa Rica finished eighth among 26 countries. The Central American nation ranked fifth or better in two of the four parameters assessed. Costa Rica's performance was weighed down by the regulated nature of its power market which is dominated by vertically integrated public utility Instituto Costarricense de Electricidad (ICE), the sole power purchaser in the country. This and the fact that Costa Rica benefits from the highest electrification rate in the region have historically limited market opportunities for private players. Still, in recent years, there have been positive signs of ICE welcoming additional private investment.

From 2006 to 2011, a cumulative \$1bn went into Costa Rican clean energy projects and businesses. Recent wind investment has come in the wake of local power contract auctions held by ICE which highlighted growing acceptance of new market entrants. The utility has also recently implemented a pilot program allowing residential customers to install solar systems and sell excess capacity back into the grid. Given Costa Rica's high residential power prices, the solar market now appears poised for growth. Commercial and industrial end-users may also benefit from the net metering rules by acting as independent generators, provided they receive ICE approval to connect to transmission lines.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Autoridad Reguladora de los Servicios Públicos Notes: For 2010.
 6. Ibid.
 7. Ibid.

I. ENABLING FRAMEWORK

Ranking 15 / Score 1.460

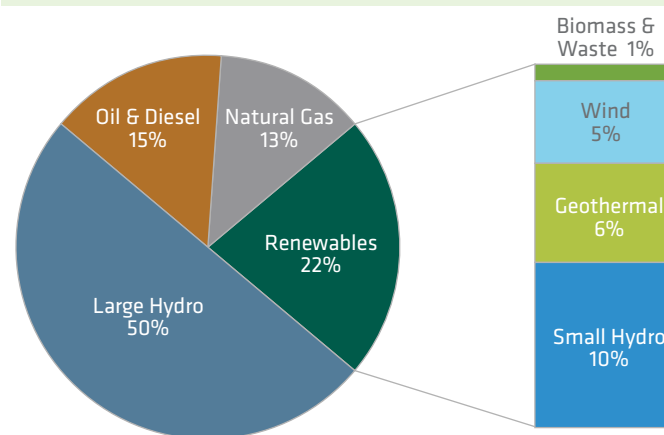
With a 1.46 score Costa Rica placed 15th in the Enabling Framework parameter, its weakest performance overall. The low score in the power market structure indicator was driven by the fact that it operates a single-buyer regulated market with extensive barriers blocking new private generators. Costa Rica also scored below average in terms of clean energy policy ambition and effectiveness though it does allow net metering and offers tax-based incentives for low-carbon businesses.

Costa Rica is Central America's largest market by capacity with 2.6GW installed, almost a quarter of which is renewable.⁸ It is Central America's least reliant on oil and diesel, requiring fossil fuels for less than half of its power needs. Instead, large hydro provides the bulk of generation with 6,042GWh in 2010. Additionally, the country has one of the most diversified renewable matrices of Latin America and the Caribbean with 258MW small hydro, 166MW of geothermal, 120MW of wind and 40MW of biomass & waste. Instituto Costarricense de Electricidad (ICE) controls generation, transmission and distribution while acting as the country's sole power purchaser. This monop-

sony and other factors have limited renewable capacity and generation growth to 8% and 10%, respectively from 2006 to 2011. Apart from ICE, local cooperatives also own and operate generation and distribution assets, besides partnering with green microfinance institutions. The country's near total electrification rate (98.9%) means there are fewer opportunities for small, distributed generation growth.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)

2.6GW Total



Source: Bloomberg New Energy Finance, Instituto Costarricense de Electricidad

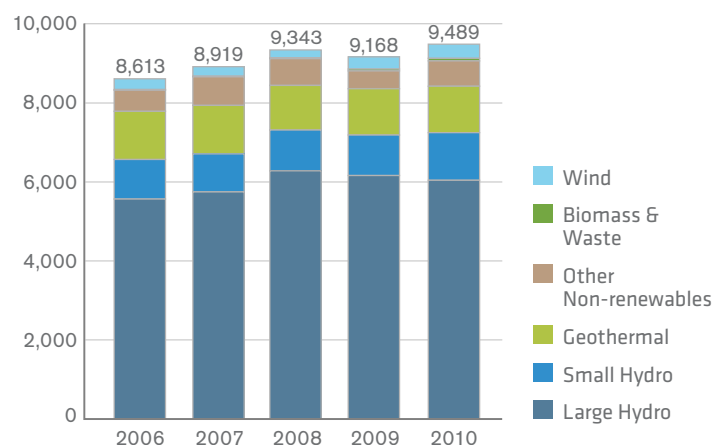
KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
1	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
0	Equity Finance Grants; Incubators; Infrastructure funds; Other
0	Debt Finance Funding; Export trade credit; Green bonds; Other
1	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
0	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Instituto Costarricense de Electricidad

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

8. Central American countries include: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

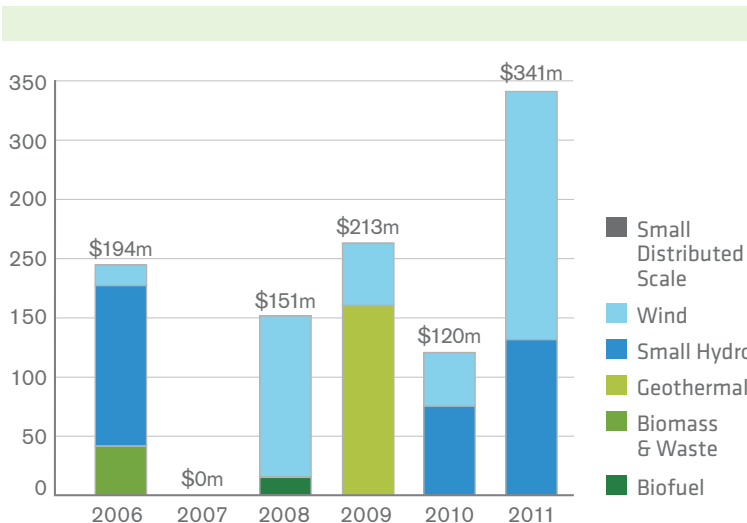
II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 3 / Score 1.460

With a 1.46 score, Costa Rica ranks third in Parameter II. From 2006 to 2011, cumulative clean energy investment totaled \$1.02bn, sixth highest among nations in the Latin American Caribbean region when adjusted for GDP. Investments hit a record in 2011 when \$131m was committed to two small hydro projects and \$209m backed two wind farms. Of that, \$37m supported a 12.75MW wind project developed by Cooperativa de Electrificación Rural Los Santos (Coopesantos) with financing from Banco Internacional de Costa Rica (BICSA). Another \$125m financed a 49.5MW wind project to be built by Acciona Energia and Grupo Ecoenergia. Power generated from that project will serve ICE and was contracted under a tender organized by the utility. BICSA is the most active of three finance providers in the country, but the bank has limited experience funding clean energy.

Of 20 microfinance institutions active in the country only three responded that they offer green micro loans. Additionally, Costa Rica's score was boosted by its relatively low cost of sovereign debt, which stands at around 4.6%, among the lowest in the region.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

20 MFIs

How many offer green micro loans:

3 MFIs

Green MFI Organizations:

Asociación de Productores Industriales y Artesanales de Golfito (APIAGOL)

ASPROA

Banco Centro Americano de Integración Económica (BCIE)

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 20 MFIs in Costa Rica, 16 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

LOCAL INVESTMENTS BY LOCAL PLAYERS

2011 Total **\$36.5m**

Top Local Investor

1st Banco Internacional de Costa Rica \$36.5m

Source: Bloomberg New Energy Finance.

Note: Figures only include investments in new build clean energy projects in 2011, do not include refinancing or acquisitions.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 5 / Score 1.828

Costa Rica ranks fifth when the low-carbon and clean energy value chain parameter is considered on its own. The country has at least three local clean energy finance providers including: Banco Internacional de Costa Rica (BICSA), Banco Nacional de Costa Rica (BNCR) and Central American Bank for Economic Integration (CABEL). Costa Rica was the sixth best-ranked country in Latin America and the Caribbean in terms of the completeness of its clean energy value chain. There is at least one active player in each sub-category of all six clean energy value chains. Not surprisingly, the wind and small hydro value chains are the most robust followed by geothermal and biomass & waste. In all, there are five clean energy service providers active in Costa Rica from clean energy technical consultants to special technicians.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
2	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical ; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services ; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor; Market Research ; PR Company
2	Financial & Legal Services	Banking-Corporate ; Banking-Custody , Trust & Deposit ; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers ; Retailing/IOC
2	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation ; Project Development ; System Integration
2	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase ; Pre-Drilling Exploration; Project Development ; Turbine & Power Block; Well Completion & R.C. Resource
3	Small Hydro	Civil Works/Builder ; Engineering ; Operation & Maintenance ; Power Purchase; Turbines
1	Solar	Balance of Plant; Cells; Ingots; Installation ; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
4	Wind	Bearings; Blades; Construction/Installation ; Gearboxes; Generators; O&M ; Power Generator ; Project Development ; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
	Funds
●	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects. Check means there is at least one institution active in that segment in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 11 / Score 1.309

With a 1.31 score, Costa Rica placed 11th in the Greenhouse Gas Management Activities parameter.

It achieved a relatively high score in the parameter analyzing Clean Development Mechanism (CDM) offset project volume at around 333tCO₂/\$m. The Central American country has three forestry projects serving the voluntary

markets and a mix of clean energy CDM projects. These include small hydro, landfill gas, wind, hydro, palm oil solid waste, agricultural residue and reforestation. The fact that there are seven CDM validators locally helped raise Costa Rica's score. There was no record of locally based companies reporting emissions or energy efficiency programs.

CARIBBEAN

Dominican Republic

GDP¹: **\$93.4bn**
 6-Year Economic Growth Rate²: **7%**
 Population³: **10.2m**
 Total Cumulative Clean Energy Investments, 2006–2011⁴: **\$526m**
 Installed Power Capacity⁵: **3GW**
 Renewable Share⁶: **7%**
 Total Clean Energy Generation⁷: **912GWh**
 Top Energy Authority: **National Energy Commission**



OVERALL RANKING

15

OVERALL SCORE

1.07

PARAMETER	RANKING	SCORE
I. Enabling Framework	9	1.913
II. Clean Energy Investment & Climate Financing	25	0.158
III. Low-Carbon Business & Clean Energy Value Chains	17	0.438
IV. Greenhouse Gas Management Activities	13	1.051

SUMMARY

With an overall *Climatescope* score of 1.07, the Dominican Republic ranked 15th among 26 Latin American and Caribbean nations. Its \$93.4bn GDP makes it the largest economy in the Caribbean⁸ and the highest ranked of eight countries in that region. It fared particularly well on Parameter I thanks to the ambitiousness of its low-carbon policy framework. The Dominican Republic has eight types of clean energy policies, including a 25% by 2025 clean electricity supply target, the region's most ambitious. Currently, about 7% of the country's 3GW total installed capacity is small hydro.

From 2006 to 2011, the Dominican Republic received \$526m in clean energy investments. Some 55% of this was committed to develop four wind farms with a proposed combined capacity of 80.6MW. Two of these were commissioned in 2011, bringing 33.5MW of new capacity on line. Moving forward, wind is poised to become the country's flagship renewable sector. Despite these investments, the Dominican Republic scored low in the parameter assessing clean energy investments because it has the region's second highest cost of sovereign debt and no reported green micro-finance activity.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Organismo Coordinador del Sistema Eléctrico Nacional Interconectado de la Republica Dominicana (OC) and Superintendencia de Electricidad (SIE) Notes: For 2010.
 6. Ibid.
 7. Ibid.
 8. For the purpose of this report, we do not consider Puerto Rico to be part of the Caribbean as it is not a borrowing member of the IDB.

PARAMETERS SUMMARY

The Dominican Republic was the best ranked Caribbean country, largely due to a strong Enabling Framework and moderate standing in parameters III and IV. However, a low score in Parameter II hurt its overall performance.

The nation received the fourth highest score for the clean energy policy indicator. The Dominican Republic has eight types of clean energy policies (see illustration). In 2007, the government established a 10%-by-2015 renewable energy mandate, which rises to 25% by 2020. This is the most aggressive target in the region. Experts consulted for this study deemed the Dominican Republic's framework to be highly ambitious; it remains somewhat unproven as it has yet to spur significant clean energy deployment.

The country also fared well in the parameter analyzing the power sector's openness to private sector players. In the late nineties state-owned vertically integrated utility, Corporación Dominicana de Electricidad (CDE) was unbundled and its generation assets privatized. Today, the Dominican Republic remains open to private participation in generation, but transmission and distribution remain largely in state hands. Independent power producers are active in the market thanks to a functioning wholesale power market.

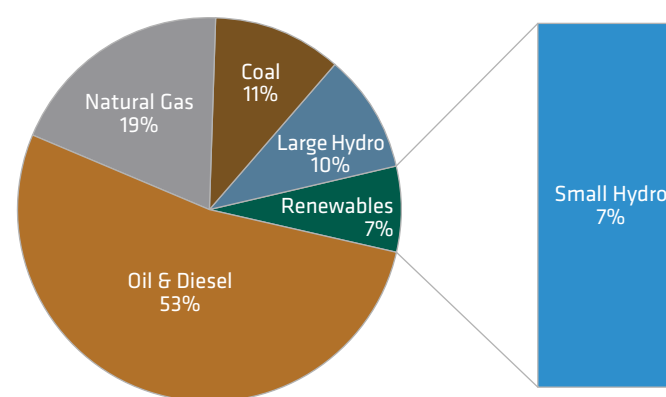
The Dominican Republic's overall score was depressed by its weak performance on Parameter II. The country has a high cost of debt at 17.2%. From 2006 to 2011, about \$526m was invested in local clean energy projects. Compared against the country's \$93.4bn GDP it received a low score on the clean energy investments indicator. About

\$289m of the total went to finance four new wind projects. Two of these have since been commissioned, adding 33.5MW of wind capacity to the power matrix. The Dominican Republic has relatively underdeveloped clean energy value chains.

The country fared better on Parameter IV, receiving a middle-of-the-pack score due to the large number of Clean Development Mechanism (CDM) validators locally.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)

3GW Total



Source: Bloomberg New Energy Finance, Organismo Coordinador del Sistema Eléctrico Nacional Interconectado de la República Dominicana and Superintendencia de Electricidad

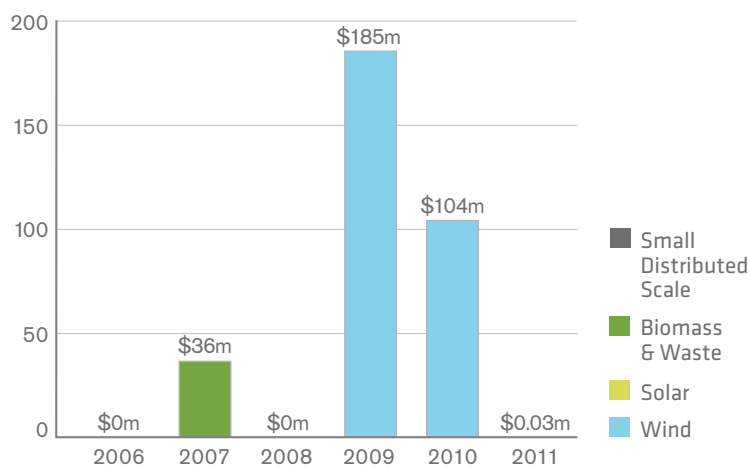
KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
	Energy Market
4	Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance
1	Grants; Incubators; Infrastructure funds; Other
	Debt Finance
	Funding; Export trade credit; Green bonds; Other
	Tax-Based
3	Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market
	Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

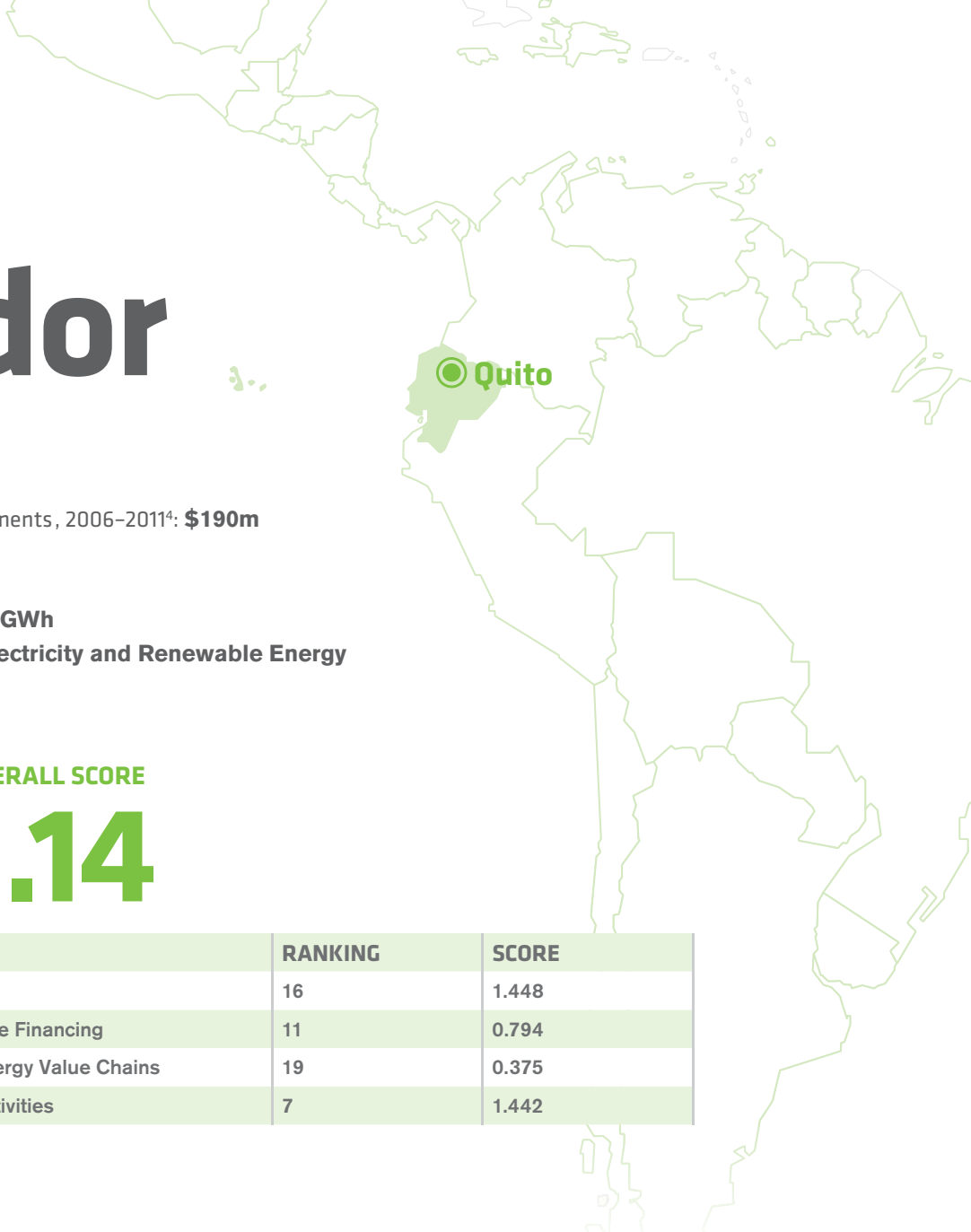
Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

SOUTH AMERICA



Ecuador



GDP¹: **\$127.4bn**
 6-Year Economic Growth Rate²: **5%**
 Population³: **13.6m**
 Total Cumulative Clean Energy Investments, 2006–2011⁴: **\$190m**
 Installed Power Capacity⁵: **5GW**
 Renewable Share⁶: **8%**
 Total Clean Energy Generation⁷: **1,641GWh**
 Top Energy Authority: **Ministry of Electricity and Renewable Energy**

OVERALL RANKING

14

OVERALL SCORE

1.14

PARAMETER	RANKING	SCORE
I. Enabling Framework	16	1.448
II. Clean Energy Investment & Climate Financing	11	0.794
III. Low-Carbon Business & Clean Energy Value Chains	19	0.375
IV. Greenhouse Gas Management Activities	7	1.442

SUMMARY

Ecuador placed 14th among 26 countries with an overall *Climatescope* score of 1.14. The country’s relatively high scores on indicators comprising Greenhouse Gas Management Activities boosted its overall score. But Ecuador did not perform highly in Parameters I and II, especially on indicators that measured clean energy penetration, policy and regulation, and funds committed. From 2006 to 2011, cumulative clean energy investments in the country reached \$190m, with small hydro attracting 73% of the total. Small hydro is the country’s flagship clean energy sector, with 308MW, or 6%, of total clean energy installed capacity.

Recently, investors have begun pouring capital into wind projects, and the sector currently has the most robust local value chain. Currently there are 36MW of utility-scale wind projects in the construction pipeline for Ecuador, and the sector is poised for further growth. Thanks to grants from international development finance institutions, the country has been able to expand electricity access in remote areas such as the Galapagos Islands via the use of renewable energy. A drop in installed biomass capacity from 2009 to 2011 hurt Ecuador’s overall *Climatescope* performance.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Consejo Nacional de Electricidad (CONELEC) Notes: For 2010.
 6. Ibid.
 7. Ibid.

I. ENABLING FRAMEWORK

Ranking 16 / Score 1.448

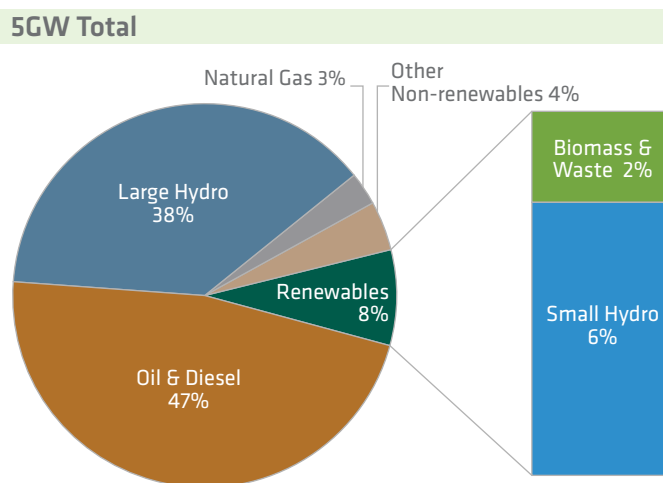
Ecuador scored in the bottom half of *ClimateScope* nations in the Enabling Framework parameter, with a 1.45 score. Lack of clean energy penetration is largely to blame. From 2009 to 2010, installed clean capacity dropped from 417MW to 411MW, as 5MW of biomass plants went offline. Consequently, Ecuador placed second to last in the indicators assessing growth rates for both installed renewable capacity and renewable generation. Still, the country lies within the regional average for capacity on-line today with 411MW, or 8%, of its total capacity.

The country did not score highly in the policy and regulation category. Ecuador is one of only four countries in the region to have a feed-in tariff on its books, but the scheme is not really active in practice. Policy experts consulted for this study did not consider Ecuador's clean energy policy framework to be very ambitious or effective.

The country did not fare well in the indicator assessing power sector openness to private sector participation. Despite reforms in the mid-1990s, significant barriers for new entrants remain and government subsidies have created substantial market distortions. Relatively low prices have led to sub-optimal investments in the power sector at large, and in clean energy specifically.

Government-sponsored clean energy rural electrification program Fondo de Electrificación Rural y Urbano Marginal (FERUM) helped boost Ecuador's standing in Parameter I. Thanks in part to FERUM, Ecuador has a 91% electrification rate. Market size expectations are not particularly large for Ecuador, mainly because of low power demand growth rate, low prices and a high level of electrification.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)



Source: Bloomberg New Energy Finance, Consejo Nacional de Electricidad (CONELEC)
 Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

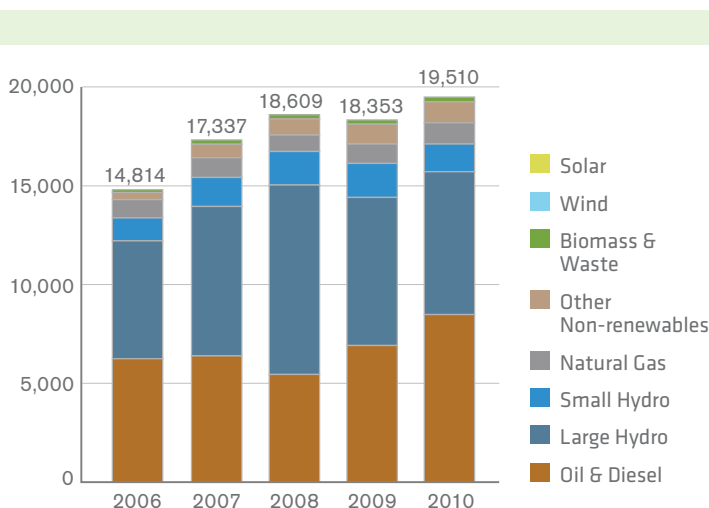
KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
	Energy Market
1	Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance
	Grants; Incubators; Infrastructure funds; Other
	Debt Finance
	Funding; Export trade credit; Green bonds; Other
1	Tax-Based
	Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market
	Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Consejo Nacional de Electricidad (CONELEC)
 Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 11 / Score 0.794

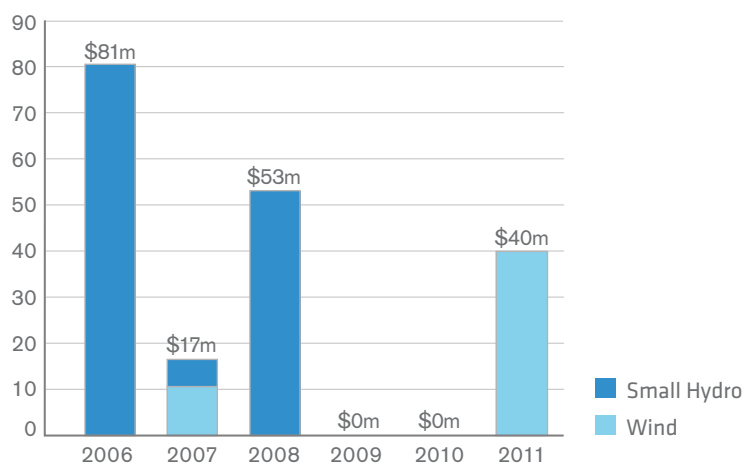
With a 0.79 score and at 11th position, Ecuador fared comparatively well in this parameter thanks to respectable clean energy investment growth and a moderate cost of sovereign debt (8%). From 2006 to 2011, the country attracted a cumulative total \$190m, ranking 19th among 26 countries on a levelized basis for this indicator. Historically the small hydro sector has taken up the lion's share of total investments.

Last year, state-owned electricity generator Empresa Regional de Energías Renovables y Desarrollo Humano (ENERSUS) committed \$35m to the 16.5MW Vilonoco wind farm project in southern Ecuador. This represented all clean energy investment in the country for the year and far exceeded the previous wind commitment, \$10.6m back in 2007.

Ecuador's green microfinance sectors appear to be underdeveloped compared with those elsewhere. Only three of the country's 56 microfinance institutions (MFIs) that responded to the *Climatescope* survey said that they offer green financial products⁸. One local MFI, FACES, said it has disbursed \$450m in green loans to 70,000 low-income rural households, representing 20% of its entire lending portfolio.

From 2006 to 2011, about \$15m in grants was disbursed to renewable expansion and energy efficiency efforts in Ecuador. About \$6m of that went to electrify the Galapagos Islands with clean generation.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006–2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

56 MFIs

How many offer green micro loans:

3 MFIs

Green MFI Organizations:

Centro de Economía Solidaria (CESOL ACJ)

Cooperativa de Ahorro y Crédito (COOP) Chone

Fundación de Apoyo Comunitario y Social del Ecuador (FACES)

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 56 MFIs in Ecuador, 43 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

8. There are 56 microfinance organizations currently operating in Ecuador, according to MixMarket data. Of those 56 that received the *Climatescope* Green Microfinance Survey, 43 responded. In all 40 organizations said they do not offer green financial products and three said they do.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 19 / Score 0.375

Ecuador had its lowest score on the Low-Carbon Business and Clean Energy Value Chain parameter, scoring 0.38 and placing 19th. Local low-carbon businesses, particularly financial institutions and service providers, are relatively inactive in Ecuador. Wind has by far the most complete value chain with at least three subsectors available locally, including wind power generators, project developers, and turbine manufactures. Quito-based Proviento SA engages in wind measurements and manufactures micro-scale wind turbines. Additionally, three other clean energy sectors (biofuels, biomass & waste, as well as solar) have at least one sub segment of their value chains active in Ecuador.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Biofuels	Distribution & Blending; Engineering Companies ; Feedstock Suppliers; Producers; Retailing/IOC
1	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development ; System Integration
0	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
0	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
1	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development ; Raw Feedstock (solar-grade silicon); Wafers
3	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator ; Project Development ; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 7 / Score 1.442

Among the four parameters, Ecuador scored highest by far for its activities to limit greenhouse gas emissions. The country received a 1.44 score in this area, finishing seventh among the 26 nations surveyed. Ecuador also placed seventh in terms of volume of expected 2012 offset credit issuance, though on a levelised basis (taking into account the country's GDP), it actually ranked 14th. Ecuador received

a particularly good score on the Clean Development Mechanism (CDM) risk indicator, with a total of 10 such projects. It also has 10 active CDM validators operating locally, which served to boost its score. Ecuador could have performed even better on the Greenhouse Gas Management Activities parameter if companies headquartered there were to disclose their emission-mitigation efforts.

CENTRAL AMERICA

El Salvador

GDP¹: **\$44.6bn**
 6-Year Economic Growth Rate²: **2%**
 Population³: **6.2m**
 Total Cumulative Clean Energy Investments, 2006–2011⁴: **\$69.6m**
 Installed Power Capacity⁵: **1.5GW**
 Renewable Share⁶: **23%**
 Total Clean Energy Generation⁷: **1,954GWh**
 Top Energy Authority: **National Energy Council**

San Salvador

OVERALL RANKING

OVERALL SCORE

13

1.19

PARAMETER	RANKING	SCORE
I. Enabling Framework	10	1.875
II. Clean Energy Investment & Climate Financing	20	0.467
III. Low-Carbon Business & Clean Energy Value Chains	11	1.094
IV. Greenhouse Gas Management Activities	14	0.962

SUMMARY

El Salvador placed 13th with an overall *Climatescope* score of 1.19. It fared well in the indicators gauging its Enabling Framework and Greenhouse Gas Management Activities. Like its Central American neighbors, El Salvador relies heavily on oil and diesel for power generation. Together, they account for nearly half the country’s 1.5GW installed capacity.

From 2006 to 2011, El Salvador attracted \$70m for its low-carbon economy. While \$50m of this went into the biofuels sector in 2008, the country only has two ethanol plants and one biodiesel plant commissioned with capacities of 13mLpa

and 227mLpa, respectively. Geothermal stands as El Salvador’s flagship renewable sector, with 204MW installed. Still, total investment in geothermal (\$17m) for the 2006–2011 period was significantly below its historical average. Nevertheless, the sector is poised to continue its lead thanks to vast untapped resources and a relatively robust local geothermal value chain.

In a potentially hopeful sign for the industry in May 2012, the government published a “master plan” for deploying more renewables in El Salvador.

1. Source: International Monetary Fund, World Economic Outlook, April 2012.
 Note: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.

2. Source: Ibid. Note: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Period 2011.

5. Source: Superintendencia General de Electricidad y Telecomunicaciones (SIGET).
 Note: For 2010.

6. Ibid.

7. Ibid.

I. ENABLING FRAMEWORK

Ranking 10 / Score 1.875

El Salvador's 1.88 score for its Enabling Framework was the highest it received for any parameter placing it 10th. The country fared particularly well on scores related to its power sector structure, price attractiveness and market size. However, its overall Parameter I score was depressed by a weak performance in indicators with strong weighting, including clean energy policy. Clean energy penetration was also not a strong suit since clean capacity actually dropped during the period assessed and total renewable generation has plateaued near 2,000GWh. Power demand growth overall has also been relatively weak.

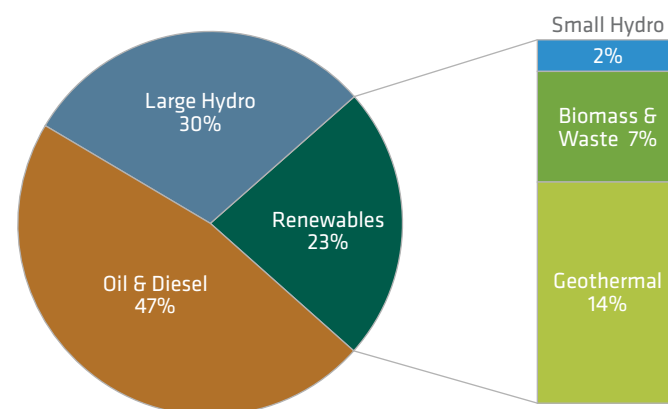
El Salvador received a 4.5 out of five score for the indicator tracking power sector openness to new private sector entrants in generation. This is a reflection of the country's successful liberalization of its electricity sector, establishment of a functioning wholesale power market, creation of an independent system operator and the unbundling and privatization of power assets, which may encourage private renewable project development.

El Salvador received a lower score for the clean energy policy indicator because the current framework is limited to tax incentives. One such tax credit is available on income derived from the sale of certified emission reductions under the Clean Development Mechanism. Separate

breaks are available for owners of 10–20MW sized clean energy projects over the first five years of operation and for owners of projects 10MW or smaller for their first decade of operation. Considering its relatively low electrification rate (85%), El Salvador has potential for distributed renewable generation growth.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)

1.5GW Total



Source: Bloomberg New Energy Finance, Superintendencia General de Electricidad y Telecomunicaciones

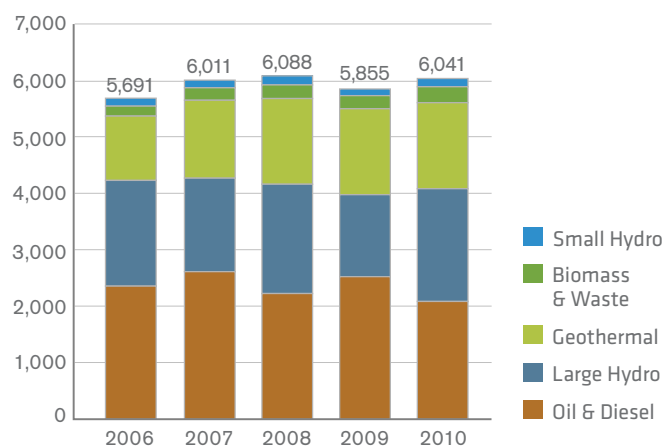
KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
2	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006–2010 (GWh)



Source: Bloomberg New Energy Finance, Superintendencia General de Electricidad y Telecomunicaciones

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

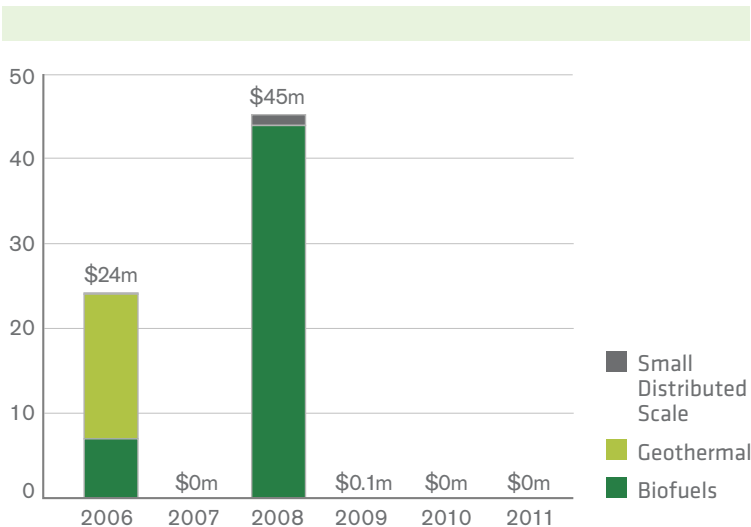
Ranking 20 / Score 0.467

El Salvador received its lowest score (0.47) on the clean energy investments and finance parameter, ranking 20th, in this parameter alone. Total cumulative clean energy investment from 2006 to 2011 reached \$70m. However, \$43m of that went toward a single ethanol plant in 2008, and no new clean energy funds have been invested locally since. The balance of the total (\$17m) went toward geothermal development though this represented a significant drop from the almost \$103m the technology attracted in 2005 alone. Additionally, \$1.6m has been disbursed to fund small distributed clean energy projects to help address the country's relatively low electrification rate.

Development finance institutions have committed \$8.4m in grants to help El Salvador further develop a low-carbon economy. The Inter-American Development Bank has funded energy sector reforms, efficiency programs and the development of a biofuels action plan, among other things.

The green microfinance sector is relatively developed in El Salvador. Of 19 active microfinance institutions, at least three have green products. Local microfinance institution SAC Integral says it has committed around \$250,000 in green micro loans to some 500 Salvadorian borrowers. The relatively low cost of sovereign debt, at 6.3%, also helped raise its score for this parameter.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

19 MFIs

How many offer green micro loans:

3 MFIs

Average costs of green micro loans:

11%

Total amount of green micro loans disbursed:

\$250,000

Number of green micro borrowers:

500

Green MFI Organizations:

Bancofit

Banco ProCredit El Salvador

Sociedad de Ahorro y Crédito Apoyo Integral (SAC Integral)

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 19 MFIs in El Salvador, 16 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 11 / Score 1.094

El Salvador's national development bank, Banco Multisectorial de Inversiones (BMI) offers credit lines specifically for renewables. The only other financial provider with a local presence is the Honduras-based multilateral development bank – Central American Bank for Economic Integration (CABEI) through a local representative branch. Despite their local presence these financial institutions did not commit any funds to clean energy projects and companies in El Salvador, in the 2006–2011 period.

The local manufacturing and supply chain for the geothermal sector is fairly developed in El Salvador since the country has seen significant investment in this area. In all, the country has four of seven sub-activities for geothermal. The remaining five clean energy sectors have at least one sub-activity active in El Salvador; with sectors such as wind as well as biomass & waste with two. El Salvador only has two other clean energy service providers operating locally and this lowers its score on this parameter.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
0	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
0	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor; Market Research; PR Company
1	Financial & Legal Services	Banking-Corporate; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
2	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
4	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
0	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
1	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
2	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
	Funds
	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 14 / Score 0.962

With a score of 0.96, El Salvador placed 14th in Parameter IV. The country performed strongly in the offset project volume indicator, which had the strongest weighting in this parameter. With a total 342.7tCO₂/\$m abatement, El Salvador placed fourth in this particular indicator behind Nicaragua, Chile and Panama. The bulk of Clean Development Mechanism (CDM) projects in the country is in the

forestry sector followed by a few renewable projects. The country has just two CDM projects, less than what has been developed in 13 other countries in the Latin America and Caribbean region. No Salvadorian companies disclosed emissions reduction efforts or energy efficiency initiatives and this contributed to bringing down the country's parameter score.

CENTRAL AMERICA

Guatemala

GDP¹: **\$74.7bn**
 6-Year Economic Growth Rate²: **4%**
 Population³: **14.4m**
 Total Cumulative Clean Energy Investments, 2006–2011⁴: **\$401m**
 Installed Power Capacity⁵: **2.5GW**
 Renewable Share⁶: **28%**
 Total Clean Energy Generation⁷: **2,394GWh**
 Top Energy Authority: **Ministry of Energy and Mines**

Guatemala City

OVERALL RANKING

9

OVERALL SCORE

1.45

PARAMETER	RANKING	SCORE
I. Enabling Framework	12	1.695
II. Clean Energy Investment & Climate Financing	7	1.158
III. Low-Carbon Business & Clean Energy Value Chains	9	1.203
IV. Greenhouse Gas Management Activities	6	1.527

SUMMARY

Guatemala ranked 9th with an overall *Climatescope* score of 1.45, among 26 Latin American and Caribbean nations. The country made the top 10 in three out of four parameters assessed and landed in 12th spot for its weakest parameter. Guatemala’s top score for the parameter assessing Greenhouse Gas Management Activities was a result of its relatively high Clean Development Mechanism (CDM) issuance success rate and the presence of local CDM validators. With 2.5GW of installed power capacity, more than a quarter of which is clean, Guatemala has the fourth highest share of renewables of any country in Latin America and

the Caribbean. From 2006 to 2011, some \$401m went into Guatemala’s clean energy projects and companies. Small hydro is the country’s flagship sector in terms of both investments and installed capacity. With 241MW of capacity, small hydro represents 10% of total installed capacity and has attracted \$152.5m in new capital to date. Guatemala’s clean energy value chains are also relatively well developed with at least one company active in each of the six clean energy sectors: biofuels, biomass & waste, solar, wind, small hydro and geothermal.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Cumulative investments from 2006 to 2011.
 5. Source: Administrador del Mercado Mayorista (AMM) Notes: for 2010.
 6. Ibid.
 7. Ibid.

I. ENABLING FRAMEWORK

Ranking 12 / Score 1.695

Scored for its Enabling Framework alone, Guatemala placed 12th among 26 *Climatescope* countries thanks to a welcoming power sector structure and a significant share of renewable capacity. In the 1990s, Guatemala liberalized its power sector, allowing private companies to pursue opportunities in generation, transmission and distribution. Following reforms, the country established an independent system operator (Administrador del Mercado Mayorista) and regulator (Comisión Nacional de Energía Eléctrica), adding transparency and efficiency to the local power market. In 2003, Guatemala enacted its renewable energy law which grants three types of tax breaks for clean energy power generation. Today the country has the fourth highest renewable share of the Latin America and Caribbean region, with 28% of its 2.5GW capacity coming from low-carbon sources. The country also has a fairly diversified renewable power matrix, with 382MW of biomass, 241MW of small hydro, and 49MW of geothermal. Despite the significant presence of renewables, capacity expansion grew rather timidly from 2006 to 2011, hurting the country's overall performance. In 2010, Guatemala imported 223.4GWh of generation to meet 2.8% of its overall electricity needs, suggesting room

for the development of local sources of clean power. Additionally, the country's 80% electrification rate – fifth lowest in the Latin America and Caribbean region – leaves space for further clean energy deployment at the small distributed level. Guatemala's wholesale power market is well functioning and features the region's fourth highest prices, averaging \$103/MWh. This makes it potentially attractive to developers seeking to build utility-scale renewable projects.

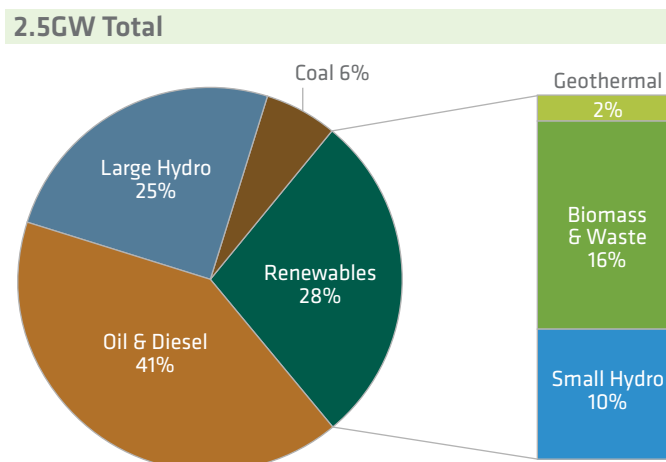
KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
○	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
○	Equity Finance Grants; Incubators; Infrastructure funds; Other
○	Debt Finance Funding; Export trade credit; Green bonds; Other
● 3	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
○	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

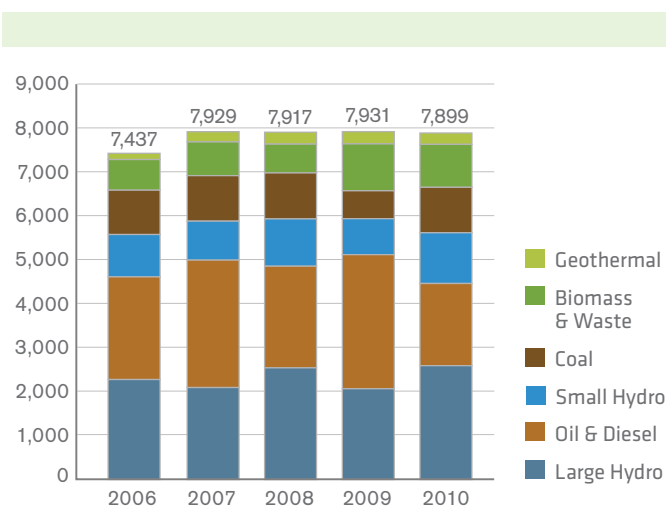
Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)



Source: Bloomberg New Energy Finance, Administrador de Mercado Mayorista

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Administrador de Mercado Mayorista

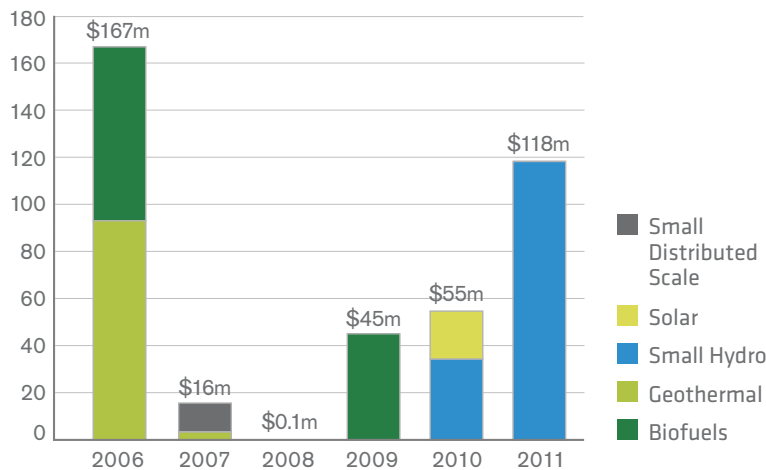
II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 7 / Score 1.158

Guatemala achieved its best ranking on Parameter II, coming in seventh among 26 countries. Its high score was largely due to a recent spike in clean energy investments and a low cost of sovereign debt (6%). From 2006 to 2011, \$401m was invested in Guatemalan clean energy projects and companies. While in relative terms this was not the most significant in the region, the increase in the last year was third highest among *Climatescope* countries. In 2010, the commitment that stood out was a private equity investment to Greenergyze, a Guatemalan small-scale solar energy company. In 2011, the 45MW Las Vacas small hydro plant was bought for \$118.2m.

Guatemala also received \$10.2m in grants from 2006 to 2011 and is one of eight Latin American and Caribbean nations to have benefited from the European Commission's \$42m Euro-Solar Program, which provided solar energy kits to 117 Guatemalan communities. Green microfinance also has an important role in improving access to power where only 80% of citizens are on the grid. Of 23 microfinance organizations present in the country, three responded to the *Climatescope* survey that they offer green micro loans.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

23 MFIs

How many offer green micro loans:

3 MFIs

Green MFI Organizations:

Fundación de Asesoría Financiera a Instituciones de Desarrollo y Servicio Social (FAFIDESS)

Fundación para el Desarrollo de la Pequeña Empresa (FUNDESPE)

Sociedad de Ahorro y Crédito Apoyo Integral (SAC Integral)

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 23 MFIs in Guatemala, 17 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 9 / Score 1.203

Guatemala landed in ninth position for Parameter III. The country has a limited number of financial institutions active in the clean energy sector, the most relevant being the Central American Bank for Economic Integration (CABEI). Still, the regional development bank has yet to fund a clean energy project in Guatemala. Guatemala's clean energy value chain is diversified, although far from complete. The country has companies active in six different low-carbon sectors: biofuel, biomass & waste, geothermal, small hydro, solar and wind. Not surprisingly, the two most developed clean energy sectors are those with the most local capacity commissioned (biomass & waste and small hydro). There are companies active in three out of the five possible subcategories for both the biomass & waste and the small hydro sectors.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services ; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
	Marketing Services	Distributor; Market Research; PR Company
	Financial & Legal Services	Banking-Corporate; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers ; Retailing/IOC
3	Biomass & Waste	Feedstock Supply ; Manufacturing Equipment; Power Generation ; Project Development ; System Integration
2	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase ; Pre-Drilling Exploration; Project Development ; Turbine & Power Block; Well Completion & R.C. Resource
3	Small Hydro	Civil Works/Builder ; Engineering; Operation & Maintenance ; Power Purchase ; Turbines
2	Solar	Balance of Plant ; Cells; Ingots; Installation; Modules; Project Development ; Raw Feedstock (solar-grade silicon); Wafers
2	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator ; Project Development ; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
	Funds
	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 6 / Score 1.527

Guatemala received its best score for Parameter IV, which assesses Greenhouse Gas Management Activities, ranking sixth among nations across the region. The country scored exceptionally high in the Clean Development Mechanism (CDM) risk indicator. Seven CDM projects in the country reported issuance success rate, the highest number among all the Latin American and Caribbean countries assessed for the *Climatescope*. Additionally, Guatemala's expected offset credit issuance (106.92 tCO₂/\$m) was 12th highest

on a levelized basis, with significant CDM validator presence in the form of seven organizations. Finally, on the offset development costs and difficulty survey, one respondent gave Guatemala an average score in terms of difficulty of developing projects, and claimed that around 90% of the labor involved developing projects is local. Since there were not enough survey respondents, scores were not assigned to the last two indicators.

CARIBBEAN



Guyana

Georgetown

GDP¹: **\$5.8bn**
 6-Year Economic Growth Rate²: **5%**
 Population³: **0.8m**
 Total Clean Energy Investments, 2006–2011⁴: **\$7.1m**
 Installed Power Capacity⁵: **241MW**
 Renewable Share⁶: **6%**
 Total Clean Energy Generation⁷: **N/A**
 Top Energy Authority: **Guyana Energy Agency**

OVERALL RANKING

24

OVERALL SCORE

0.38

PARAMETER	RANKING	SCORE
I. Enabling Framework	22	0.740
II. Clean Energy Investment & Climate Financing	26	0.127
III. Low-Carbon Business & Clean Energy Value Chains	24	0.141
IV. Greenhouse Gas Management Activities	20	0.176

SUMMARY

With an overall score of 0.38 Guyana ranked 24th among 26 Latin American and Caribbean countries. It placed among the bottom five countries in three out of the four parameters considered, depressing its score.

While Guyana has ample natural resources for clean energy development, it has a weak Enabling Framework, low level of clean energy investments and high sovereign debt costs. These factors have hindered clean energy deployment, hurting the country's overall performance.

There has, however, been some small- and distributed-scale renewable investment activity to expand consumer electricity

access, currently at 82%. Since transmission lines are concentrated in the coastal areas, small-scale photovoltaic systems have been used to bring power to isolated areas. From 2006 to 2011, almost \$7m was committed to a rural electrification program, offering solar panels to indigenous communities.

The 15MW Skeldon biomass co-generation facility is the only utility-scale clean energy generation plant in Guyana and is the sole CDM project. Currently, the country has no biofuels production capacity, but given that sugar exports are an important component of Guyana's economy, biofuels and biomass have the potential to become flagship clean energy sectors.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Period up to 2011.
 5. Source: Estimate based on "Guyana Investment Climate Assessment," World Bank.
 6. Ibid.
 7. N/A signifies that data was not available.

PARAMETERS SUMMARY

With an overall *Climatescope* score of 0.38, Guyana placed third from the bottom among 26 nations in the region. Despite promising potential for biofuels, biomass, and distributed solar, the country did not fare well in any of the four parameters considered for the study. Guyana's economy is primarily reliant on the export of agricultural and mining commodities such as sugar, gold and alumina. Local sugar mills are not currently producing cane-based ethanol and only one plant in the country generates electricity from burning bagasse waste. Both could potentially increase clean energy penetration in Guyana's overall energy matrix.

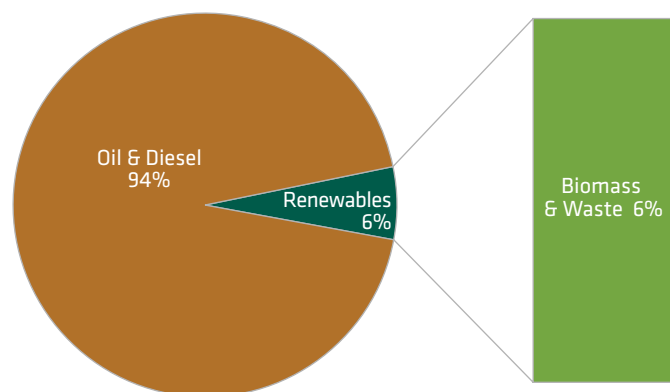
The country today hosts a single renewable energy project: a 15MW biomass co-generation plant, commissioned in 2009, that uses bagasse as feedstock. The plant is owned by Guyana Sugar Corporation (GuySuco) and provides energy to the country's national grid, representing 6% of the country's total 241MW installed power capacity. Guyana fared best in Parameter IV, thanks in part to the fact that this co-generation plant is also a registered CDM project. Still,

no companies in Guyana disclosed emission reduction or energy efficiency programs. This largely explains why it scored relatively low compared to its peers.⁸ Guyana's offset project volume is one of the lowest in the region.

With nearly 90% of its population in coastal areas, one of Guyana's major challenges is to bring electricity to isolated hinterland communities. About 75% of the country's total territory (215,000 km²) is still covered by natural vegetation, making small distributed energy systems a potentially more economic electrification solution than expanding the conventional grid. In 2009, the country signed an agreement with the Norwegian government to create a Low Carbon Development Strategy (LCDS) aimed at preserving Guyanese forests and limiting greenhouse gas emissions. In 2010, through the LCDS, \$7m was disbursed to install photovoltaic panels for indigenous communities. More clean energy and carbon reduction efforts are expected in coming years thanks to this program.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (MW)

241MW Total



Source: Estimate based on "Guyana Investment Climate Assessment," World Bank.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
0	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
1	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development ; System Integration
0	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
0	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
0	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
0	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

8. Projects are currently under development, including a MIF/IDB project to spur energy efficiency in the SME sector, in partnership with the Guyana Manufacturers and Services Association.

CARIBBEAN



Haiti

GDP¹: **\$12.4bn**
 6-Year Economic Growth Rate²: **3%**
 Population³: **10.2m**
 Total Clean Energy Investments, 2006–2011⁴: **\$0.8m**
 Installed Power Capacity⁵: **107MW**
 Renewable Share⁶: **45%**
 Total Clean Energy Generation⁷: **N/A**
 Top Energy Authority:
Ministry of Public Works, Transportation and Communications

● Port-au-Prince

OVERALL RANKING

22

OVERALL SCORE

0.44

PARAMETER	RANKING	SCORE
I. Enabling Framework	21	0.784
II. Clean Energy Investment & Climate Financing	21	0.354
III. Low-Carbon Business & Clean Energy Value Chains	23	0.203
IV. Greenhouse Gas Management Activities	22*	N/A

*Five countries did not have and/or did not disclose information pertinent to the indicators assessed on Parameter IV – Greenhouse Gas Management Activities. Thus, they were not assigned a score and were automatically ranked 22nd. These countries were: Barbados, Haiti, Suriname, Trinidad and Tobago, and Venezuela.

SUMMARY

Haiti, the Western Hemisphere's poorest economy, scored 0.44 overall, placing 22nd. The 2010 earthquake devastated what was already an ailing economy. However, efforts to rebuild Haiti have created opportunities for new clean energy deployment. Post-disaster, the electrification rate dropped from 39% – already the region's lowest in 2009 – to 12%. The country's relatively meagre 107MW overall existing installed power capacity means the power matrix is 45% clean, thanks to the existence of a single 48MW small hydro plant. Thus, while the country has far to go to bring electricity to all, Haiti has the second highest rate of clean power penetration in the region.

While private sector financing for clean energy project development is practically non-existent, multilateral development institutions have played a significant role in the Haitian energy sector at large. The vast majority of funds committed to clean energy on the island have come in the form of grants, with about \$20m given in 2011 alone. Small distributed solar is poised for growth as the most economic form of expanding access to power; microfinance institutions will likely play a key role going forward.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Estimate based on Electricité d'Haiti (EDH).
 6. Ibid.
 7. N/A signifies that data was not available.

PARAMETERS SUMMARY

Haiti was among the bottom five countries on all four parameters that comprise the *Climatescope*, resulting in a low overall score. The nation's power sector is controlled by state-owned vertically integrated utility Electricité d'Haiti (EDH), which faces serious structural problems and is heavily subsidized. In 2009, about 39% of Haiti's population had access to electricity. Today, in the wake of the 2010 earthquake, EDH distribution lines cover only 12% of the island. From 2006 to 2011, Haiti received a cumulative total of \$24m from different donors aiming to strengthen the electricity sector using renewable energy generation.

Through the *Climatescope* methodology, Haiti received a high score for its renewable installed capacity, but the indicator fails to capture the fact that it is comprised of a single on-grid renewable source. Small hydro is Haiti's flagship clean energy sector, with a total of 48MW installed in the form of EDH's Peligre plant, which represents 45% of the country's total capacity. However, Peligre does not often operate at full capacity. During the dry season its capacity drops to 10MW, due in part to its aging equipment. In 2011, Haiti received a \$20m grant from the Inter-American Development Bank to rehabilitate Peligre. In 2012, French conglomerate Alstom said it would provide turbines to restore the project to its full nameplate capacity.

Given the dramatic recent drop in photovoltaic system costs, solar technology holds the potential to bring light economi-

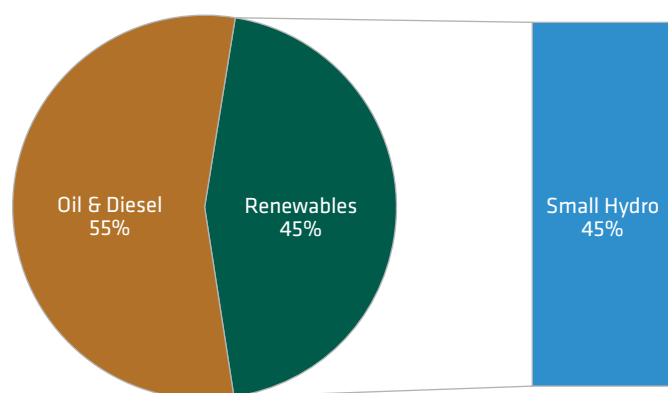
cally to a greater number of Haitians. One microfinance institution, Fonkoze, is already beginning to experiment with a pilot program that will offer low-income households the opportunity to purchase small solar systems. To date the programme has disbursed \$3,000 benefiting 22 families — a small amount, but a start.

Haiti has a monumental task ahead to provide greater energy access to more of its citizens, but clean energy is poised to play a large role, especially through distributed solar. From 2006 to 2011, \$0.8m (excluding green MFI) was committed to small scale solar initiatives. The FoodExpress and Arc Finance program, through a grant from the Multilateral Investment Fund, has begun offering Haitians in the Diaspora the opportunity to purchase solar devices for delivery to their families in Haiti, and for purchase locally through SogeSol locations. The current government, recognizing the value of solar energy in Haiti's electrification, announced in early 2012 that it plans to emulate Fonkoze's success by establishing a solar distribution program nationwide. Following this trend, Haiti's value chain has the presence of local organizations in two solar subsectors: balance of plant and solar modules.

Because there are no activities in greenhouse gas management in Haiti, the country did not receive a score for Parameter IV.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (MW)

107MW Total



Source: Estimate based on Electricité d'Haiti (EDH)

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

8 MFIs

How many offer green micro loans:

1 MFIs

Average costs of green micro loans:

5%

Total amount of green micro loans disbursed:

\$3,000

Number of green micro borrowers:

22

Green MFI Organization:

Fonkoze

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 8 MFIs in Haiti, 3 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

CENTRAL AMERICA

Honduras

GDP¹: **\$15.4bn**
 6-Year Economic Growth Rate²: **7%**
 Population³: **7.6m**
 Total Cumulative Clean Energy Investments, 2006–2011⁴: **\$596.5m**
 Installed Power Capacity⁵: **1.6GW**
 Renewable Share⁶: **16%**
 Total Clean Energy Generation⁷: **829GWh**
 Top Energy Authority:
Department of Natural Resources and Environment



OVERALL RANKING

OVERALL SCORE

12

1.28

PARAMETER	RANKING	SCORE
I. Enabling Framework	14	1.537
II. Clean Energy Investment & Climate Financing	6	1.230
III. Low-Carbon Business & Clean Energy Value Chains	12	0.813
IV. Greenhouse Gas Management Activities	12	1.060

SUMMARY

Honduras scored 1.28 and ranked 12th among 26 Latin American and Caribbean countries in the *Climatescope* index. It fared particularly well on Parameter II thanks to high investment in clean energy relative to its \$15.4bn economy. From 2006 to 2011, a cumulative \$596.5m went into Honduras' low-carbon economy. Honduras is one of the six Latin American nations to have employed government-sponsored reverse auctions to procure new renewable power⁸. The country held its first tender in 2010, contracting for 250MW of new capacity to be commissioned over the next three years.

However, the country struggles with an inefficient transmission and distribution system controlled by a state-owned vertically integrated utility. In 2010, the country had 1.6GW of installed capacity, of which 16% is clean, made up of 147MW of small hydro and 116MW of biomass & waste.

Looking ahead, Honduras' low-carbon energy sector is bound for diversification thanks to tenders for renewable power. While such mechanisms bode well for future clean energy deployment in Honduras, the country's power sector structure must still be reformed to unleash more private investment.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Note: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Note: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Note: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Note: Cumulative investments from 2006 to 2011.
 5. Source: Empresa Nacional de Energía Eléctrica (ENEE) Note: For 2010.
 6. Ibid.
 7. Ibid.
 8. Argentina, Brazil Panama, Peru and Uruguay have also used reverse auctions as a policy mechanism for procuring new clean energy capacity.

I. ENABLING FRAMEWORK

Ranking 14 / Score 1.537

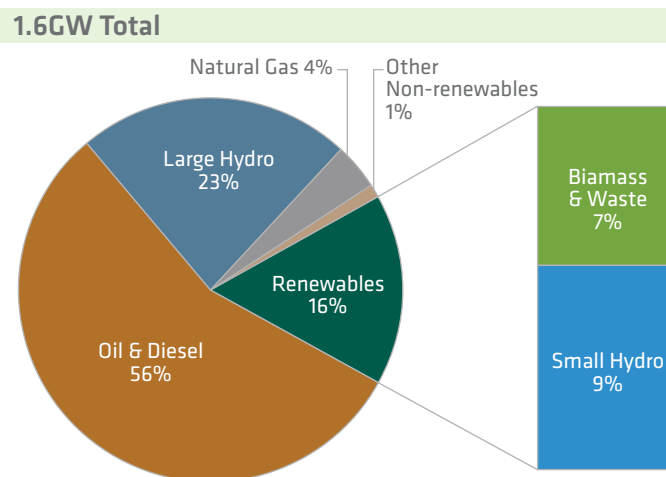
Scored on the Enabling Framework parameter alone, Honduras ranks 14th among *Climatescope* nations, just below Argentina and Guatemala. The country's current inefficiencies in transmission and distribution networks are a legacy of the attempt at power sector reform in the nineties. While there is some private participation in generation today, transmission and distribution remain a monopoly of public vertically integrated utility Empresa Nacional de Energía Eléctrica (ENEE) which struggles to maintain adequate investment, particularly in generation.

Still, as of 2010, renewables comprised 16% of the country's total 1.6GW installed power capacity. Small hydro and biomass made up the lion's share, with 147MW and 116MW capacity, respectively.

In December 2011, clean energy jumped to 21% of overall capacity after the country's first wind farm – the 102MW Cerro de Hula project – was commissioned.⁹ Honduras is also one of the six countries in Latin America that has held auctions to contract renewable capacity. In 2010, the Central American country had its first renewable energy tender, to add 250MW in capacity from biomass, small hydro and geothermal sources, through 20- and 30-year contracts.

Another challenge for Honduras is access to electricity. The country has the second lowest electrification rate in Latin America and the Caribbean, with only 70% of the population having access to power in their homes. Clearly, there is room for improvement, and clean energy could help address this in the form of distributed generation.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)



Source: Bloomberg New Energy Finance, Empresa Nacional de Energía Eléctrica (ENEE)

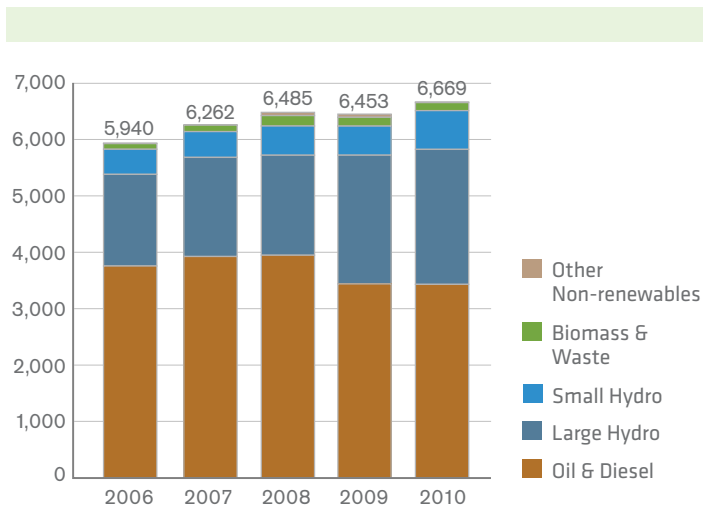
KEY POLICIES

Qty	Category
	Available Policy Type; Unavailable Policy Type
1	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
3	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

ANNUAL TOTAL ELECTRICITY GENERATION BY SOURCE, 2006–2010 (GWh)



Source: Bloomberg New Energy Finance, Empresa Nacional de Energía Eléctrica (ENEE)

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

9. Since Honduras' electricity information was only available up to 2010 by the end of the *Climatescope* data collection process, the commissioning of the wind farm was not accounted in the country's renewable share for installed power capacity.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

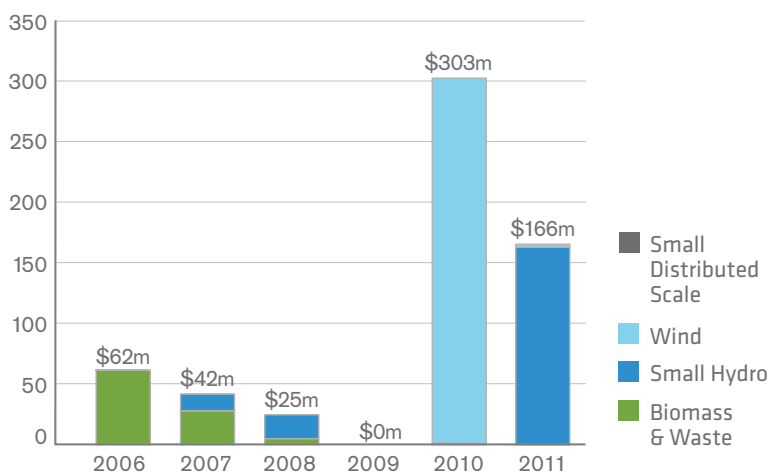
Ranking 6 / Score 1.230

Honduras achieved its best score on Parameter II, ranking sixth among the nations. Its relatively high score was largely due to a recent spike in clean energy investments. Between 2010 and 2011, some \$468.5m was invested in local new wind and small hydro projects. In 2010, the biggest commitment (\$301.6m) went to the 102MW Cerro de Hula wind farm. In 2011, some \$163m was disbursed for a 38.5MW small hydro project developed by Cia. Hondureña de Energía Renovable.

The Central American Bank for Economic Integration (CABEI), the Export-Import Bank of the U.S. (Ex-Im Bank), and the International Finance Corporation (IFC) were most active in financing. Combined, they provided nearly three quarters of the \$596.5m clean energy investments for the 2006–2011 period.

Honduras also attracted \$6.8m in low-carbon energy grants over the period. The Inter-American Development Bank contributed \$3m to help Foundation José Maria Covelo develop green micro credit lines for rural families. Once that program is in place, there will be seven microfinance institutions in Honduras offering green micro credit lines to low-income borrowers.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006–2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

24 MFIs

How many offer green micro loans:

6 MFIs

Green MFI Organizations:

Asociación para el Desarrollo Integral Comunitario de Honduras (ADICH)

Central American Bank for Economic Integration (CABEI)

Cooperativa de Ahorro y Crédito Intibuca (CACIL)

Fondo para el Desarrollo Local de Honduras (CREDISOL)

FUNDAHMICRO

FUNED

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. We had an 80% response rate for the survey. Of 24 MFIs in Honduras, 19 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 12 / Score 0.813

Honduras' score on Parameter III landed it in the middle of the pack at 12th position. The Central American Bank for Economic Integration (CABEI) disbursed \$540m between 2006 and 2011 for clean energy projects and companies in Honduras, Nicaragua, Costa Rica and Chile. Honduras alone received \$162.4m of the total. The country's clean energy value chains remain underdeveloped, with only one company active in each of the following sub-sectors: biomass & waste, small hydro, wind and geothermal. Today, there are operating biomass, small hydro, and wind projects in Honduras with the country's first geothermal project due to be commissioned soon. Honduras has no companies active as clean energy service providers.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
	Funds
	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
○	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
2	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
3	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
1	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
○	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
2	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 12 / Score 1.060

Honduras also ranked 12th for the parameter assessing Greenhouse Gas Management Activities. Today, there are 11 projects registered under the Clean Development Mechanism (CDM) in the country. Collectively, these yielded 97.33 tCO₂/\$m in offset project volume, which is the level of carbon credits issued in relation to the country's total carbon emissions. In absolute terms, Honduras would have ranked 10th in this indicator. However, when levelized against the country's GDP, the country's

ranking fell. There is a high presence of CDM validators in Honduras, with nine companies active (the highest number for a country in the Latin American and Caribbean region was 13). Finally, no Honduran company reported efforts on efficiency improvement and emissions reductions. Therefore the Central American nation did not receive scores for these two indicators.

CARIBBEAN



Jamaica

GDP¹: **\$24.8bn**
 6-Year Economic Growth Rate²: **1%**
 Population³: **2.7m**
 Total Clean Energy Investments, 2006–2011⁴: **\$100m**
 Installed Power Capacity⁵: **864MW**
 Renewable Share⁶: **8%**
 Total Clean Energy Generation⁷: **208GWh**
 Top Energy Authority: **Ministry of Energy and Mining**

Kingston

OVERALL RANKING

16

OVERALL SCORE

1.02

PARAMETER	RANKING	SCORE
I. Enabling Framework	7	1.943
II. Clean Energy Investment & Climate Financing	22	0.284
III. Low-Carbon Business & Clean Energy Value Chains	14	0.641
IV. Greenhouse Gas Management Activities	16	0.459

SUMMARY

Jamaica was second best among its Caribbean peers, with an overall *Climatescope* score of 1.02, ranking 16th among the 26 nations. When assessing its Enabling Framework in isolation, Jamaica made it to the top ten. However, relatively little financing activity brings down the country’s score in Parameter II. Jamaica has a moderately developed low-carbon business and clean energy value chain and has seen some greenhouse gas management activity.

Unlike other island nations, Jamaica is not entirely dependent on fossil fuels for electricity generation. About 8% of the country’s total 864MW installed power capacity is clean,

including 41MW of wind farms and 25MW of small hydro plants. A 40% jump in clean energy installations, coupled with high retail electricity prices, helped strengthen Jamaica’s performance on the *Climatescope* index.

Currently, the Jamaican government is in the process of approving an energy policy framework⁸ supporting clean power deployment, mandating biofuels consumption and establishing nationwide energy efficiency initiatives. Once in place, further clean energy development appears likely, especially in the form of distributed solar, which can be economical in Jamaica even without subsidies.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.

5. Source: Office of Utilities Regulation (OUR) Notes: For 2011.
 6. Ibid.
 7. Ibid.
 8. The Jamaican energy policy framework includes four documents: Renewable Energy Policy, Energy from Waste Policy, Energy Conservation and Efficiency Policy, and Biofuels Policy.

PARAMETERS SUMMARY

Jamaicans pay higher prices for electricity than those in any other country in the Latin America and Caribbean region. There is ample room for renewable technology to be cost competitive. This, coupled with an extraordinary 40% growth rate in clean energy installed capacity, explains the country's strong performance in Parameter I. The Caribbean nation is also an exception among its fossil-fuel dependent neighbors as its power matrix counting with 8% renewable capacity.

Jamaica's Ministry of Energy and Mining is currently considering a new framework establishing a slew of policies addressing waste-to-energy, biofuels, energy conservation and efficiency and renewables generally. However, the framework has been under consideration for several years now and little progress has been achieved since 2009.

As a former beneficiary of a regulatory loophole that allowed Caribbean Basin Initiative countries to export ethanol into the US market free of import tariffs, Jamaica has some biofuel infrastructure in place. Currently the Jamaica Broilers Group (JB) operates a 454mLpa ethanol dehydration facility. Petrojam's 151mLpa ethanol dehydration facility has been decommissioned in response to the expiration of the \$0.54 per gallon US tariff on imported ethanol.

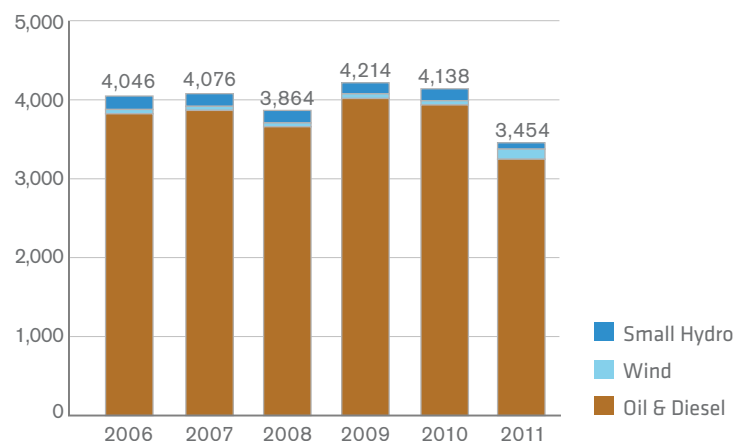
Jamaica did not perform particularly well in Parameter II, placing 22nd out of 26 nations. No funds were committed to clean energy in 2011 in Jamaica, though from 2006–2010 a cumulative \$100m was invested in wind and small hydro projects.

Jamaica does not have a very developed clean energy value chain, with only a few sectors active. Most of Jamaica's renewable energy projects have been developed by the Petroleum Corporation of Jamaica (PCJ), state-owned company overseeing oil production, and the Jamaica Public Service Company (JPS), private vertically integrated electric

utility. PCJ commissioned 38.7MW of Jamaica's wind capacity and JPS developed the country's entire 25.4MW small hydro capacity.

The country had a median score on Parameter IV, with not much activity on managing greenhouse gases. Jamaica's best indicator in this parameter was the number of validators CDM projects, with two organizations present in the country.

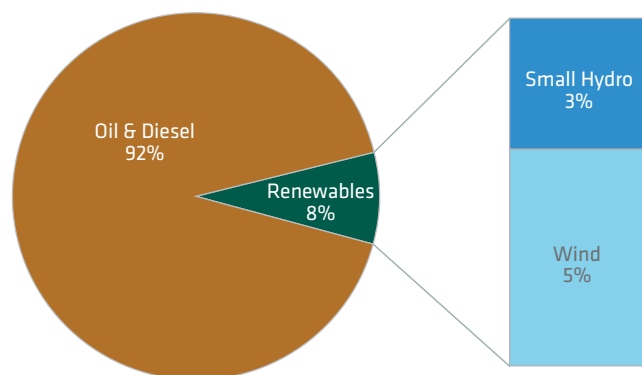
TOTAL ANNUAL ELECTRICITY GENERATION BY SOURCE, 2006–2011 (GWh)



Source: Bloomberg New Energy Finance, Office of Utilities Regulation (OUR)

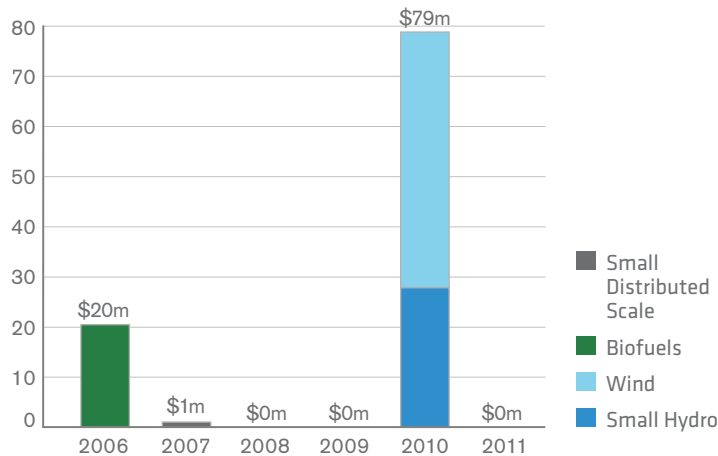
TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (MW)

864MW Total



Source: Bloomberg New Energy Finance, Office of Utilities Regulation (OUR)

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006–2011 (\$m)



Source: Bloomberg New Energy Finance

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

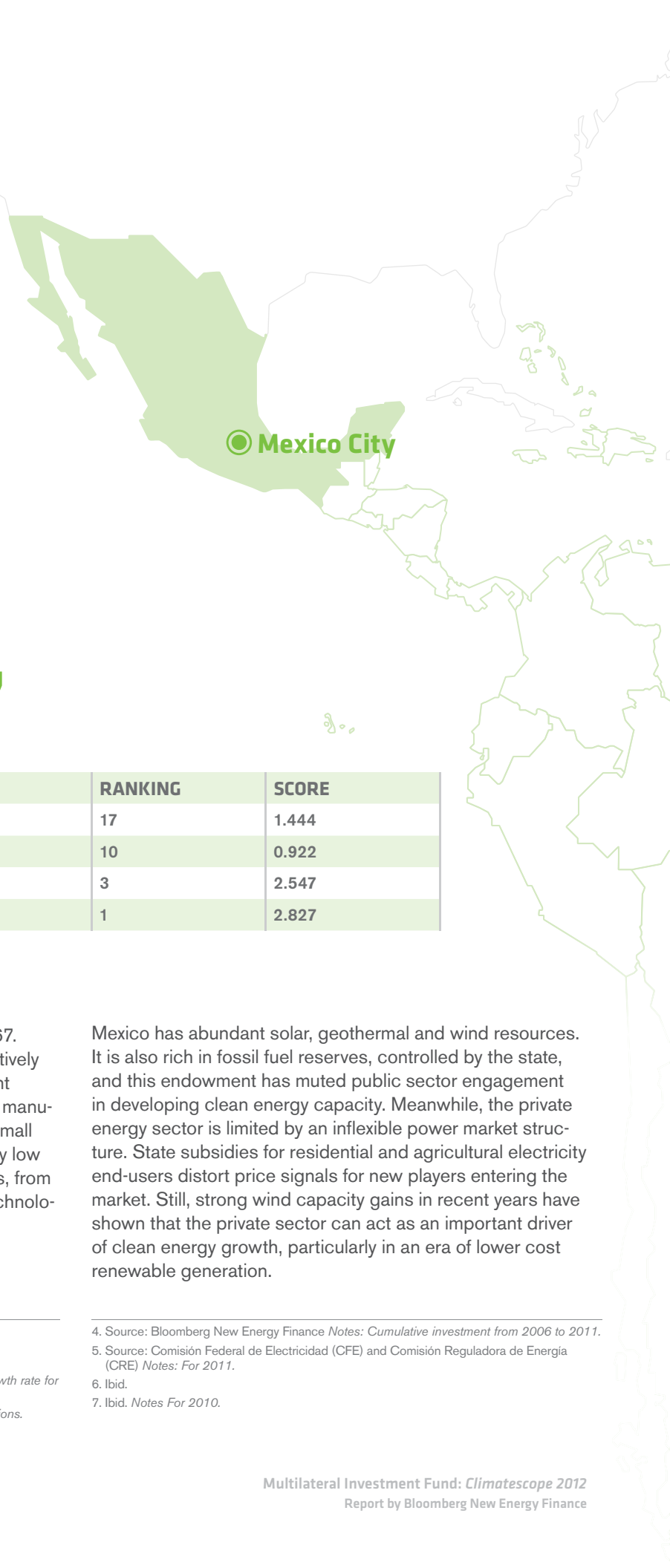
Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

NORTH AMERICA



Mexico

GDP¹: **\$1,661.6bn**
 6-Year Economic Growth Rate²: **3%**
 Population³: **111m**
 Total Clean Energy Investments, 2006–2011⁴: **\$5.8bn**
 Installed Power Capacity⁵: **59GW**
 Renewable Share⁶: **3%**
 Total Clean Energy Generation⁷: **9,567GWh**
 Top Energy Authority: **Secretariat of Energy**



OVERALL RANKING

6

OVERALL SCORE

1.67

PARAMETER	RANKING	SCORE
I. Enabling Framework	17	1.444
II. Clean Energy Investment & Climate Financing	10	0.922
III. Low-Carbon Business & Clean Energy Value Chains	3	2.547
IV. Greenhouse Gas Management Activities	1	2.827

SUMMARY

Mexico ranked sixth, with a *Climatescope* score of 1.67. The country’s overall mark is supported by a comparatively strong performance on Greenhouse Gas Management Activities and by a sizable domestic clean technology manufacturing value chain. Mexico’s score was hurt by its small share of renewable installed capacity and the relatively low growth rate of clean energy installations. Nevertheless, from 2006 to 2011, some \$5.8bn was invested in clean technologies in Mexico – the largest commitment after Brazil.

Mexico has abundant solar, geothermal and wind resources. It is also rich in fossil fuel reserves, controlled by the state, and this endowment has muted public sector engagement in developing clean energy capacity. Meanwhile, the private energy sector is limited by an inflexible power market structure. State subsidies for residential and agricultural electricity end-users distort price signals for new players entering the market. Still, strong wind capacity gains in recent years have shown that the private sector can act as an important driver of clean energy growth, particularly in an era of lower cost renewable generation.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Comisión Federal de Electricidad (CFE) and Comisión Reguladora de Energía (CRE) Notes: For 2011.
 6. Ibid.
 7. Ibid. Notes For 2010.

I. ENABLING FRAMEWORK

Ranking 17 / Score 1.444

Mexico scored 1.44 in the Enabling Framework parameter, ranking 17th among its peers. The country's performance is related to the low levels of installed renewable capacity to date, the slow growth rate for clean energy installations due to past public power planning choices and the effects of market regulation on investment.

Mexico's clean energy targets are relatively modest, and an abundance of state-owned fossil fuel reserves has done little to motivate the vertically integrated public utility, Comisión Federal de Electricidad (CFE), to take the lead on clean energy. Renewable capacity constitutes 2.1GW, or 3% of Mexico's total 59GW installed capacity. Wind generation is now price-competitive with gas and has seen the strongest growth in recent years. While Mexico is estimated to have the second largest geothermal resource base in the world, its site specificity and market regulations has prevented this resource from being tapped.

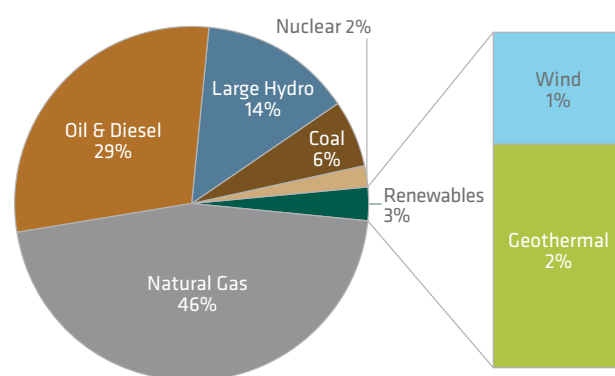
About 59% of Mexico's electricity is sold by state-owned utility CFE, and about a third of the consumer market pays at highly subsidized rates. Political pressure to maintain these artificially low rates means that independent power producer (IPP) contracts have mainly been offered to gas generation projects, which have offered the most cost-effective form of generation to date. Commercial and industrial electricity consumers, along with affluent residential customers, pay unsubsidized rates which are substantially

higher. For these groups, photovoltaics (PV) are already a competitive option on a price basis.

Mexico has one of the highest electrification rates in the region (97%). Still, two public electrification programs are under way, both drawing from a \$220m government fund set up to advance clean energy development, mostly using solar PV.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (GW)

59GW Total



Source: Bloomberg New Energy Finance, Comisión Federal de Electricidad (CFE), Comisión Reguladora de Energía (CRE), Secretaría de Energía (SENER)

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

KEY POLICIES

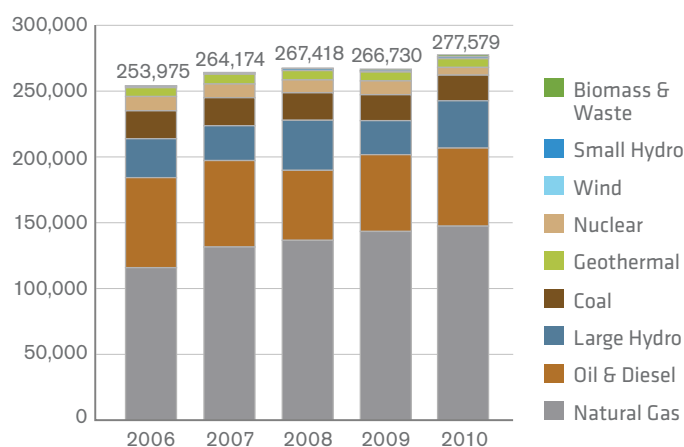
Qty	Category
	Available Policy Type; Unavailable Policy Type
	Energy Market
3	Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other*
	Equity Finance
1	Grants; Incubators; Infrastructure funds; Other
	Debt Finance
	Funding; Export trade credit; Green bonds; Other
	Tax-Based
1	Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market
	Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

*(Other)Refers to one energy market incentive: Mexico's law on the sustainable use of energy.

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies, i.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

TOTAL ANNUAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Comisión Federal de Electricidad (CFE), Comisión Reguladora de Energía (CRE), Secretaría de Energía (SENER)

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

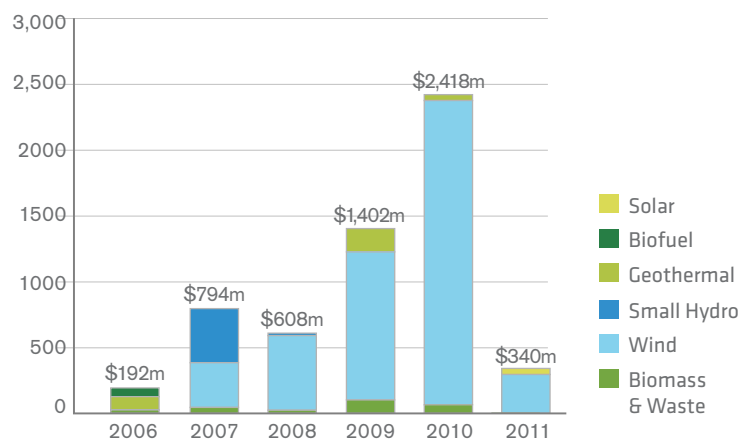
Ranking 10 / Score 0.922

From 2006 to 2011, cumulative investment in Mexico's clean energy sector totalled \$5.8bn. In 2011 alone, \$294m was committed to develop wind and \$46m for solar projects. Growth in investment since 2006 has taken place at a staggering annual rate of 97%, placing Mexico second in the sample in terms of the absolute investment received. The large majority (81%) of clean technology investment in the past year five years has gone into wind generation. Spectacular growth since 2007 coincides with power market reforms which enabled greater participation from private sector players.

Development finance institutions play a key role in funding Mexico's low-carbon sector, the biggest being the North American Development Bank (\$328m), the Inter-American Development Bank (\$207m) and the International Finance Corporation (\$207m). Among private sector lenders, HSBC tops the list. At 3.4%, the sovereign cost of debt in Mexico is the lowest in the 26-country sample, making it an attractive market despite regulatory hurdles.

Mexico fared well in the indicator assessing the availability of green microfinance. Around 9% of 55 microfinance institutions in the country have made green micro loans to 2,850 low-income borrowers and MSMEs. A total of \$371,244 has been disbursed by these stakeholders, to date. Given a domestic inflation rate of around 4.5%, the real cost of green loans is not excessive for the region, and they represent a good funding source for small scale projects.

TOTAL ANNUAL CLEAN ENERGY INVESTMENTS IN CLEAN ENERGY BY SOURCE, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

55 MFIs

How many offer green micro loans:

5 MFIs

Average costs of green micro loans:

10%

Total amount of green micro loans disbursed:

\$371,244

Number of green micro borrowers:

2,854

Green MFI Organizations:

AI Sol Contigo SA

DAI - Mexico

Sociedad de Ahorro y Crédito Apoyo Integral (SAC Integral)

Te Creemos

Unidos por el Progreso de Sayula

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 55 MFIs in Mexico, 44 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

LOCAL INVESTMENTS BY LOCAL PLAYERS

2011 Total **\$46m**

Top Local Investor

1st Nacional Financiera \$46m

Source: Bloomberg New Energy Finance.

Note: Figures only include investments in new build clean energy projects in 2011, do not include refinancing or acquisitions.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 3 / Score 2.547

Mexico ranks third in this parameter with a score of 2.5. The country is home to 22 distinct sub-sectors of six clean energy value chains. As might be expected from this high score, these span across most clean energy technologies including: biofuels, biomass, geothermal, small hydro, solar and wind (see figure). Most Mexican clean energy sub-sectors are in wind and solar. The missing activities for these two technologies are bearings and gearboxes for wind generators, and solar-grade silicon feedstock, wafers, and ingots for solar photovoltaic generation. Mexico also has a robust clean energy service provider sector.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
4	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor; Market Research; PR Company
2	Financial & Legal Services	Banking-Corporate; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
2	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
4	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
2	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
2	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
5	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
7	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
	Funds
●	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 1 / Score 2.827

Mexico ranks first if we only are considering the parameter analyzing Greenhouse Gas Management Activities. Alongside Brazil, it topped the list of countries with the greatest incidence of carbon offset project developments. Of the region's top 10 Clean Development Mechanism (CDM) projects, one is in Mexico: HFC recovery and decomposition with 14Mt of expected credits. The relatively low risk for CDM project development and the strong presence of local validators helped the country's score in this param-

eter. As one of only two OECD economies in the region, Mexico has a relatively higher level of multinational corporate presence and this helped expand Mexico's sample and score. The country has a total of 18 companies with some sort of emissions reductions program in place and 19 with energy efficiency initiatives, including: Wal-Mart de Mexico, Grupo Mexico, Fomento Economico Mexico, Coca-Cola Femsa, Industrias Penol, Grupo Bimbo and Cemex.

CENTRAL AMERICA

Nicaragua

GDP¹: **\$18.9bn**
 6-Year Economic Growth Rate²: **4%**
 Population³: **5.8m**
 Total Clean Energy Investments, 2006–2011⁴: **\$1.1bn**
 Installed Power Capacity⁵: **1.1GW**
 Renewable Share⁶: **30%**
 Total Clean Energy Generation⁷: **1,080GWh**
 Top Energy Authority: **Ministry of Energy and Mines**

Managua

OVERALL RANKING

2

OVERALL SCORE

2.13

PARAMETER	RANKING	SCORE
I. Enabling Framework	5	2.140
II. Clean Energy Investment & Climate Financing	1	3.097
III. Low-Carbon Business & Clean Energy Value Chains	13	0.750
IV. Greenhouse Gas Management Activities	9	1.348

SUMMARY

Nicaragua placed second among 26 countries with an overall *Climatescope* score of 2.13. The country performed well on indicators with strong weighting: clean energy policies, power sector structure, total clean energy investments, and availability of green microfinance. From 2006 to 2011, cumulative clean energy investment in the country totaled \$1.1bn. Last year alone, around \$211m went to Nicaragua’s wind and geothermal sectors. The Central American nation has the region’s most developed green microfinance sector with a total of 10 organizations providing 3,511

low-income borrowers with some kind of green financial product. Biomass & waste is currently Nicaragua’s flagship clean energy sector with a total 122MW of installed capacity. In 2010, the sector accounted for 11% of total electricity generation (384.7GWh). However, it is the favorable geothermal potential which positions the country well to develop more clean energy capacity in coming years. Since 2009, this promising sector has been taking the lion’s share of total clean energy investment, reaching a cumulative total of \$563m in 2011.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Instituto Nicaragüense de Energía (INE) Notes: For 2011. Includes capacity for isolated systems.
 6. Ibid.
 7. Ibid. Notes: For 2010.

I. ENABLING FRAMEWORK

Ranking 5 / Score 2.140

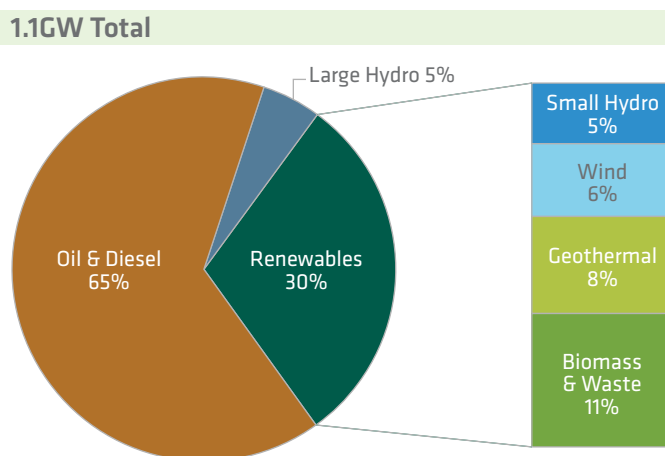
Looking solely at the Enabling Framework parameter, Nicaragua scored 2.14 ranking 5th. It performed slightly better than Chile thanks to the significant share of renewable capacity relative to its \$18.9bn economy, the growing share of renewables for electricity generation, and the relatively attractive electricity tariffs for both the retail and spot power markets. While 30% of Nicaragua's total 1.07GW installed power capacity is derived from renewables, the country is still largely reliant on dirty and expensive fossil fuels.

The country's energy market regulatory framework, in place since April 2005, aims to displace close to 700MW of oil and diesel power capacity by obliging electricity distributors to tender power purchase contracts for clean energy for at least 10 years. Nicaragua's power sector reform has been somewhat successful in establishing a functioning wholesale power market, and opening opportunities for the private sector in generation and distribution. Power market regulator Instituto Nicaragüense de Energía (INE) seeks to encourage renewable energy generators to sell output into the spot market. Thanks to INE's stewardship, the country has effectively enforced these renewable energy contractual incentives.

In 2010 alone, the Central American nation generated 1,080GWh of renewable power, mostly from biomass & waste, and geothermal sources. Electricity prices are attractive for investors, averaging \$0.18/kWh at the retail

level and \$137/MWh in the spot market. High electricity prices encourage the development of new generation from cheaper, cleaner sources. The country has a low electrification rate (72%) compared with other Latin American and Caribbean nations. This offers opportunity for small, distributed scale clean energy developers to tap into this resource-rich market. To aid this deployment, the government and development finance institutions have been offering grants to off-grid programs aimed at expanding access to energy in a sustainable manner.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (GW)



Source: Bloomberg New Energy Finance, Instituto Nicaragüense de Energía (INE).
Note: 2011 data refers to capacity as of September 2011.

KEY POLICIES

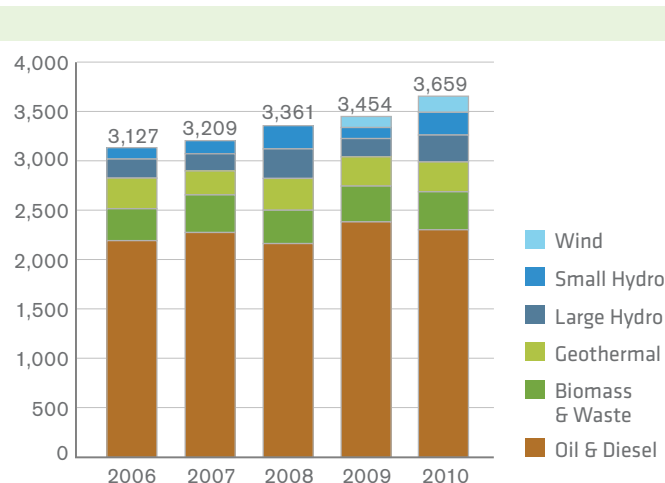
Qty	Category
	Available Policy Type; Unavailable Policy Type
1	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other*
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
3	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other**
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

*(Other) Refers to one energy market incentive: Nicaragua renewable energy contractual incentive. / **(Other) Refers to other specific tax-based incentives.

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

ANNUAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Instituto Nicaragüense de Energía (INE).
Note: Data includes isolated systems.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

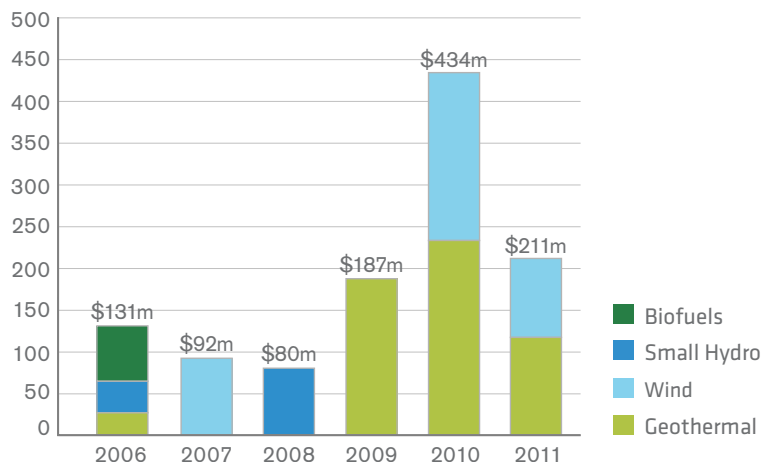
II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 1 / Score 3.097

From 2006 to 2010, Nicaragua attracted approximately \$1.1bn in clean energy investment for its geothermal (50%), wind (34%), small hydro (10%) and biofuels (6%) sectors. Last year alone, about \$117m and \$95m went into financing new geothermal and wind projects, respectively. Since 2009, geothermal has attracted the most interest from investors seeking to explore Nicaragua's promising but relatively untapped sub-surface power generation potential.

Development finance institutions – the Central American Bank for Economic Integration (CABEI), the Inter-American Development Bank (IDB), and the Multilateral Investment Fund (MIF) – have played a key role in funding clean energy development in Nicaragua. The government has also come to play a significant role in the sector through investments made via Financiera Nicaragüense de Inversiones in which it holds a controlling stake. The downside for investors is that the local cost of funding is relatively high compared with other countries in the region. Nicaragua's sovereign cost of debt averages around 13%.

NICARAGUA ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006–2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Clean energy activity in Nicaragua is also very strong at the micro level, where investment decisions are not made based on pure economic profit, but also on broader social benefits. Nicaragua is the most robust green microfinance market of the Latin America and Caribbean region with 10 organizations offering some kind of green financial product. Costs for green micro loans in Nicaragua range from 1.5% to 28% depending on the green microfinance institution and green financial product. The majority of borrowers are either low income rural citizens or rural micro, small and medium enterprises (MSMEs).

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

31 MFIs

How many offer green micro loans:

10 MFIs

Average costs of green micro loans:

13.2%

Total amount of green micro loans disbursed:

\$2,934,307

Number of green micro borrowers:

3,511

Green MFI Organizations:

AFODENIC

Asociacion Alternativa

Caritas Esteli

CEPRODEL

Coop 20 de Abril

Fondo de Desarrollo Local

FUNDENUSE

FUNDESER

MiCredito

Prestanic

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 31 MFIs in Nicaragua, 25 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 13 / Score 0.750

Local manufacturing and supply chains for clean energy goods, services, and financing are fairly underdeveloped in Nicaragua. Finance providers are the most established with a handful of banks operating locally. Nicaragua has at least one active sub-sector in five out of six clean energy value chains (see figure on the right). Of those, the geothermal and small hydro value chains are the most developed. Other active players in Nicaragua include: Tecnosol and ECAMI, two small companies that sell solar photovoltaic modules and other renewable energy technologies to rural households and businesses; Grupo Fenix, a non-profit fostering development of renewables, particularly solar, in rural areas; and Paso Pacifico, an advisory and consultancy offering carbon consulting services.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
	Funds
	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
1	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development ; System Integration
2	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase ; Pre-Drilling Exploration; Project Development ; Turbine & Power Block; Well Completion & R.C. Resource
2	Small Hydro	Civil Works/Builder; Engineering ; Operation & Maintenance ; Power Purchase; Turbines
1	Solar	Balance of Plant; Cells; Ingots; Installation ; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
1	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development ; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 9 / Score 1.348

Nicaragua has a strong variety of Clean Development Mechanism (CDM) projects, mostly from renewable sources – wind, small hydro, geothermal and bagasse incineration power – but also reforestation. The country received a good score on the CDM offset project volume indicator, ranking 3rd. However, the country did not score

at all on three other indicators – CDM risk, companies' efforts on emission reduction and efficiency gains – which depressed its overall ranking in this parameter. On the carbon offset survey, Nicaragua received an average score in terms of difficulty for developing projects. Respondents said that around 90% of the labor involved in developing projects is local.

CENTRAL AMERICA



Panama

GDP¹: **\$50.6bn**
 6-Year Economic Growth Rate²: **9%**
 Population³: **3.5m**
 Total Clean Energy Investments, 2006–2011⁴: **\$1.1bn**
 Installed Power Capacity⁵: **2GW**
 Renewable Share⁶: **13%**
 Total Clean Energy Generation⁷: **795GWh**
 Top Energy Authority: **National Secretariat of Energy**

Panama City

OVERALL RANKING

3

OVERALL SCORE

1.97

PARAMETER	RANKING	SCORE
I. Enabling Framework	1	2.712
II. Clean Energy Investment & Climate Financing	13	0.712
III. Low-Carbon Business & Clean Energy Value Chains	10	1.172
IV. Greenhouse Gas Management Activities	3	2.750

SUMMARY

With an overall *Climatescope* score of 1.97, Panama placed 3rd among 26 nations. The country’s performance is largely due to its Enabling Framework and substantial efforts aimed at managing greenhouse gas emissions. Its liberalized power market has attracted investments in new clean energy generation and as a result the country has posted exceptionally high growth rates in this area. Still, the country’s overall ranking was hurt by its relatively low score on clean energy investments and finance, which was assessed based on

its importance relative to the overall economy. Panama also lags behind other Central American nations in green microfinance activity. In absolute terms, investments in clean energy picked up starting from 2007, reaching \$1.1bn in 2011, mostly for small hydro projects. In the short term, small hydro will continue to be Panama’s flagship renewable source, but once the country’s reverse auctions for clean energy gain traction wind capacity additions should follow.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Autoridad Nacional de los Servicios Públicos (ASEP) Notes: For 2011.
 6. Ibid.
 7. Ibid. Notes: For 2010.

I. ENABLING FRAMEWORK

Ranking 1 / Score 2.71

Panama's 2.71 score on the Enabling Framework parameter placed it above the 25 other nations, including Brazil and Nicaragua. Its first place finish was due to a favorable power sector structure and strong growth rates in clean energy installed capacity and generation. Still, only recently has Panama pushed for more diverse clean energy policies, holding its first wind auction in 2011 and setting a biofuels mandate to start in 2013. The current policy framework, while relatively ambitious, must mature to prove its effectiveness in encouraging clean energy deployment and technology diversification.

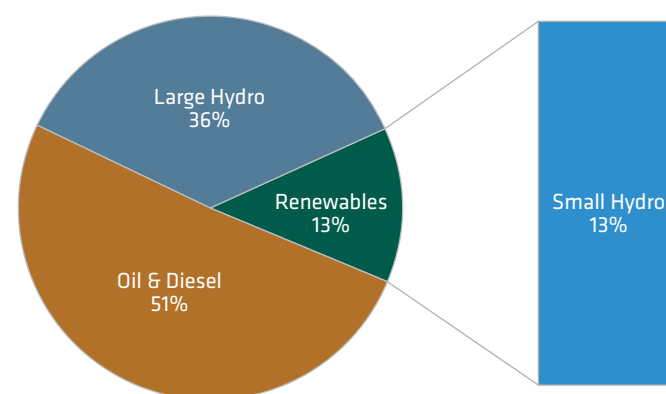
GDP growth has averaged 12% per year over the past five years resulting in both a rapid rise in electricity demand and expansion of local clean energy capacity. The country had 64MW of clean capacity installed in 2007, which quadrupled by mid-2011, reaching 262MW. While all of that was small hydro projects, Panama is now poised for diversification after holding its first reverse auction for wind power contracts, with some 158MW of new wind capacity expected to come online by 2014.

Clean energy project developers are not limited to selling power into the grid via government-sponsored reverse auctions. Panama's functioning wholesale power market – associated with relatively high spot prices – provides investors with an attractive opportunity to build new clean energy generation projects without relying on risky incen-

tives. The country's electrification rate is relatively low at around 85% compared with the Latin American and Caribbean average (88%). To counter that, the government has begun to tap developing clean energy via the Oficina de Electrificación Rural (OER). This program aims to expand access to energy in the countryside through the use of small distributed systems powered by photovoltaics, micro hydro and small wind turbines.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (GW)

2GW Total



Source: Bloomberg New Energy Finance, Autoridad Nacional de los Servicios Públicos (ASEP).

KEY POLICIES

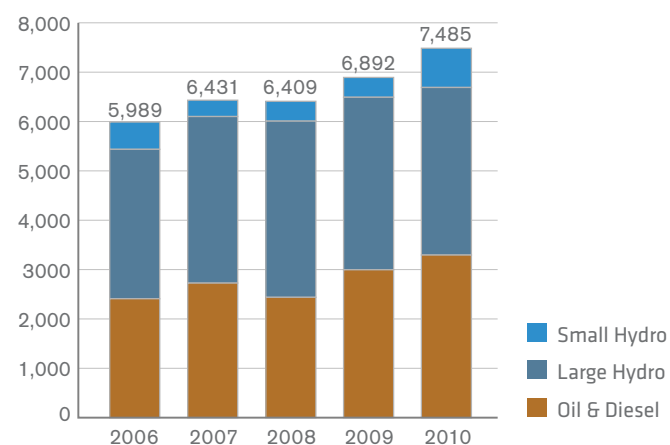
Qty	Category
	Available Policy Type; Unavailable Policy Type
2	Energy Market Feed-in tariff; Energy targets; Auction ; Biofuels blending mandate ; Net metering; Other
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
3	Tax-Based Accelerated depreciation; Tax relief ; Income Tax; Import Duty ; Tax rebate; Other*
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

*(Other) Refers to other specific tax-based policies

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

ANNUAL ELECTRICITY GENERATION BY SOURCE, 2006–2010 (GWh)



Source: Bloomberg New Energy Finance, Autoridad Nacional de los Servicios Públicos (ASEP).

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

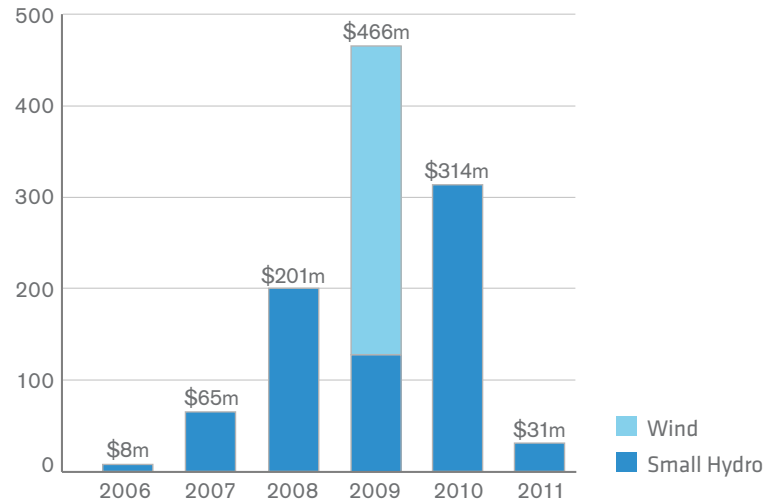
II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 13 / Score 0.712

Panama had its lowest score on the clean energy investments and climate financing parameter, holding 13th position with a 0.71. Although the country had a cumulative total of \$1.1bn invested in clean energy from 2006 to 2011, the investment growth rate has slowed since 2009. Panama's score was adversely impacted by its lack of local green microfinance availability and dearth of local investors.

In 2011, only \$31m was invested in Panama's clean energy sector, a small sum compared with 2009 (\$466m) and 2010 (\$314m). Small hydro has been the lead sector for investment over the years, with the exception of 2009 when wind had the largest share due to the financing of a 225MW wind farm. The Inter-American Investment Corporation (IIC) and the Inter-American Development Bank (IDB) are the main project financiers in the country. The IDB is also the sole provider of all clean energy grants to date.

ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006–2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 10 / Score 1.172

Panama did not rank well on the Low-Carbon Business and Clean Energy Value Chains parameter, scoring 1.17. It placed 10th, landing between two other Central American nations: Guatemala and El Salvador. With regard to financial institutions, the country has organizations in two segments: banks and private equity/venture capital. Although most of the country's investment in clean energy has been in the small-hydro sector, its value chain is underdeveloped. Wind is the sector with most value chain segments, but still, only two: generators and project development. Similarly, Panama's local market for clean energy service providers has not been fully explored, with only three types of companies active out of a total of 20. Overall, the country's value chain is incomplete and there is plenty of room for local companies to tackle the market, taking advantage of Panama's generous policy tax incentives.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

● Banks

Corporate Finance

Funds

● Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance.

Note: Refers to types of institutions that finance clean energy projects.

Parameter III Continued.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical ; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor ; Market Research; PR Company
1	Financial & Legal Services	Banking-Corporate ; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance.

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
1	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development ; Turbine & Power Block; Well Completion & R.C. Resource
	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
1	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators ; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance.

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 3 / Score 2.750

Panama performed strongly on the Greenhouse Gas Management Activities parameter, ranking 3rd with a score of 2.75. That high score is largely attributed to the offset project volume indicator, in which the country ranked first. This signifies Panama had the highest carbon project abatement relative to its GDP and CO₂ emissions. Looking ahead, the short-term abatement opportunities should be relatively sparse despite significant existing carbon offset projects (28), including hydro CDM efforts and forestry projects. Panama did not score at all on the other three related

indicators that account for the balance of greenhouse gas activity score – CDM risk, companies' efforts on emissions reduction and efficiency gains – leaving room for improvement. Though the results of the carbon offset survey do not affect the overall score (weighting for this parameter is zero as the sample size was too small), our survey respondents gave Panama middle-of-the-pack scores in terms of difficulty and cost for developing projects.

SOUTH AMERICA

Paraguay

GDP¹: **\$35.3bn**
 6-Year Economic Growth Rate²: **6%**
 Population³: **6.4m**
 Total Clean Energy Investments, 2006–2011⁴: **\$69m**
 Installed Power Capacity⁵: **8GW**
 Renewable Share⁶: **N/A**
 Total Clean Energy Generation⁷: **N/A**
 Top Energy Authority: **Viceministry of Mines and Energy**

OVERALL RANKING

18

OVERALL SCORE

0.86

PARAMETER	RANKING	SCORE
I. Enabling Framework	20	0.909
II. Clean Energy Investment & Climate Financing	5	1.252
III. Low-Carbon Business & Clean Energy Value Chains	16	0.500
IV. Greenhouse Gas Management Activities	19	0.335

SUMMARY

With an overall *Climatescope* score of 0.86, Paraguay ranked 18th out of 26 countries in the region. Located at the center of the Rio de la Plata Basin, Paraguay has relied entirely on large hydro power generation to meet its power needs, but this generation source is not considered low-carbon in the *Climatescope*⁸. This has meant heavy government involvement in the power sector and no need for new capacity additions. Both factors have contributed to the country’s relatively poor performance in Parameter I – Enabling Framework. Because Paraguay is a net exporter of large hydro-generated electricity and features relatively

low consumer power prices there has been relatively little impetus within the country to establish new clean energy policies. The country has also seen very little low-carbon business and clean energy value chain activity and relatively few greenhouse gas management projects. All of this served to hurt Paraguay’s overall performance. However, the country’s biofuels sector has gained traction in recent years thanks to a 24% ethanol blending mandate. Given the recent extraordinary growth rate of the Paraguayan economy, demand for light vehicles is on the rise and this could further boost investment in local biofuels.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment for 2006 to 2011.
 5. Source: Viceministerio de Minas y Energia Notes: For 2011. 99.93% large hydro.
 6. Ibid. Note: N/A refers to no renewable installed capacity.
 7. Ibid. Note: N/A refers to no renewable power generation available.
 8. Employing a definition long used by Bloomberg New Energy Finance, this study does not consider large hydro (>50MW) to be a low-carbon source of power generation.

PARAMETERS SUMMARY

The unique characteristics of the Paraguayan energy sector hurt its overall standing and depressed its score on a parameter by parameter basis. In particular, the country fared poorly on Parameter I. Under the *Climatescope* methodology, hydro projects larger than 50MW are not regarded as “clean” sources of power generation. Thus large hydro-reliant Paraguay scored a zero both for both clean installed capacity and clean electricity generation. Had large hydro been considered clean, Paraguay would have finished first in the clean energy installed capacity indicator.

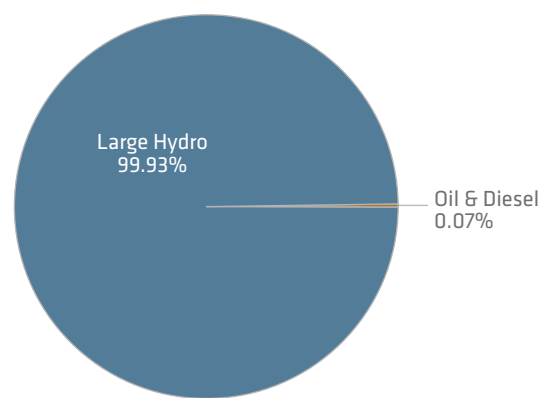
The Paraguayan government keeps tight rein over the country’s energy sector through its vertically integrated utility Administracion Nacional de Eletricidad (ANDE) and two companies it owns and operates jointly with the governments of Argentina and Brazil, respectively. Private sector players have largely remained on the sidelines as a result.

Thanks to the enormous volume of power generated from the Itaipu dam, Paraguay has had little incentive to develop policies that spur deployment of new low-carbon energy capacity. While there have been some efforts to power rural farms with photovoltaic systems, there is little to suggest renewable power generation will become a priority in coming years.

In 2005, Paraguay’s 24% ethanol blending mandate went into force. Today, the country has 130m liters of annual ethanol production capacity on line. Paraguay’s economy has grown at a compound annual growth rate of 6% over the past five years, creating greater demand for light vehicles and, in turn, biofuels. Demand should continue to grow in future years, assuming the country can continue to grow at a steady pace.

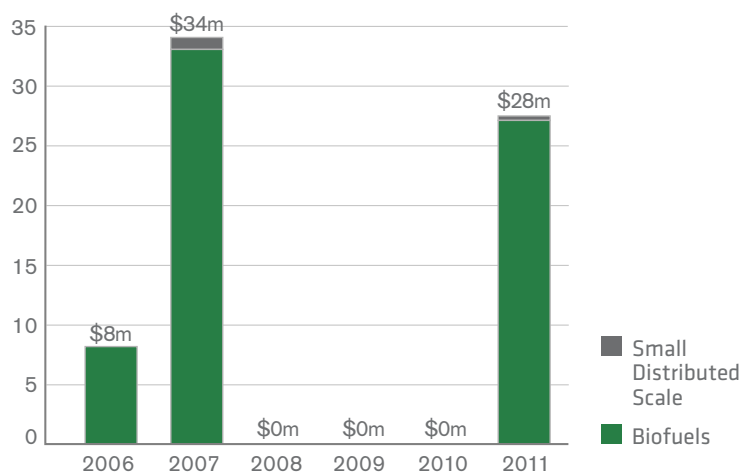
TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (GW)

8GW Total



Source: Bloomberg New Energy Finance, Sistema de Información Energética Nacional (SIEN)

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

8 MFIs

How many offer green micro loans:

2 MFIs

Average costs of green micro loans:

21.5%

Total amount of green micro loans disbursed:

\$245,574

Number of green micro borrowers:

759

Green MFI Organizations:

Fundación Paraguaya

Vision Banco

Source: Bloomberg New Energy Finance.

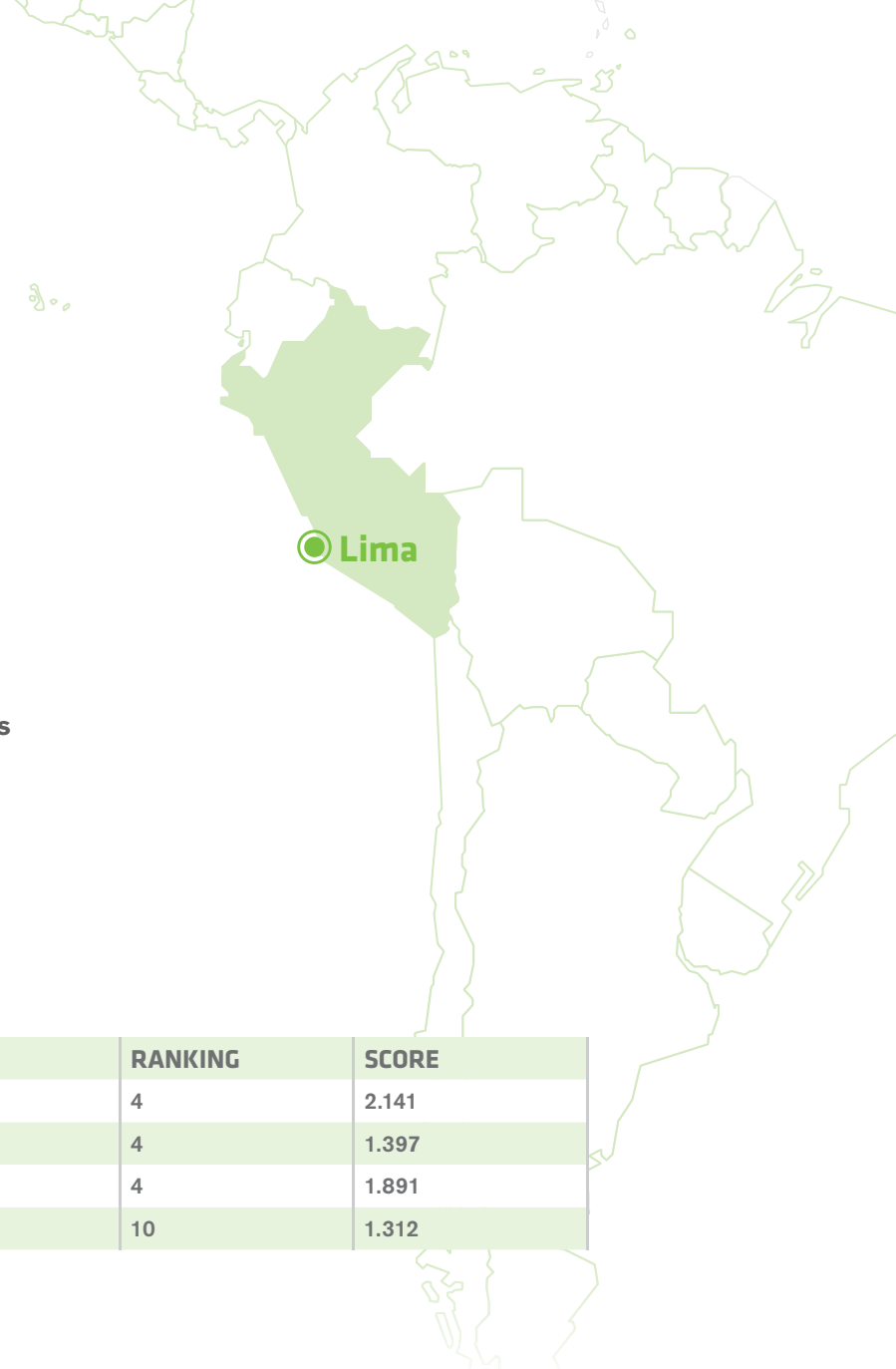
Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. All the 8 MFIs in Paraguay responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

SOUTH AMERICA



Peru

GDP¹: **\$302bn**
 6-Year Economic Growth Rate²: **7%**
 Population³: **29.5m**
 Total Clean Energy Investments, 2006–2011⁴: **\$1.3bn**
 Installed Power Capacity⁵: **8GW**
 Renewable Share⁶: **7%**
 Total Clean Energy Generation⁷: **3,201GWh**
 Top Energy Authority: **Ministry of Energy and Mines**



OVERALL RANKING

4

OVERALL SCORE

1.73

PARAMETER	RANKING	SCORE
I. Enabling Framework	4	2.141
II. Clean Energy Investment & Climate Financing	4	1.397
III. Low-Carbon Business & Clean Energy Value Chains	4	1.891
IV. Greenhouse Gas Management Activities	10	1.312

SUMMARY

With an overall *Climatescope* score of 1.73, Peru placed fourth among all countries assessed in this study. Among the seven Tier 1 nations with annual GDP over \$100bn, it finished second only to Brazil⁸. Peru fared well in the Enabling Framework parameter thanks to the success of government-sponsored clean energy auctions in contracting clean power, rural electrification programs' use of clean energy technologies and a deregulated power sector structure favorable to new clean energy generators. The country's robust green microfinance sector, with 11 institutions offering a range of green micro products, also helped Peru outshine its peers.

Cumulative clean energy investment from 2006 to 2011 totaled \$1.3bn. Peru attracted more solar investment (\$165m) than any other nation in the region in 2011 owing to the government's commitment to auction off grid-connected solar capacity. Historically, however, biofuels have led the way in terms of investment, and over a five-year period the sector attracted approximately \$670m. Small hydro has also played an important role; it currently accounts for 535MW, or 6%, of Peru's total installed power capacity.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.
 5. Source: Ministerio de Energía y Minas (MINEM) Notes: For 2010.
 6. Ibid.
 7. Ibid.
 8. Tier 1 countries have GDPs above \$100bn. These include: Brazil, Mexico, Venezuela, Argentina, Colombia, Chile and Peru.

I. ENABLING FRAMEWORK

Ranking 4 / Score 2.141

Examining the Enabling Framework parameter in isolation, Peru maintains its fourth position with a score of 2.14. A wave of deregulation and privatization in the 1990s opened the country's power market to private sector participation in generation, transmission and distribution. Peru thus received a high score in the indicator measuring how a country's power market structure enables private sector participation in clean energy generation.

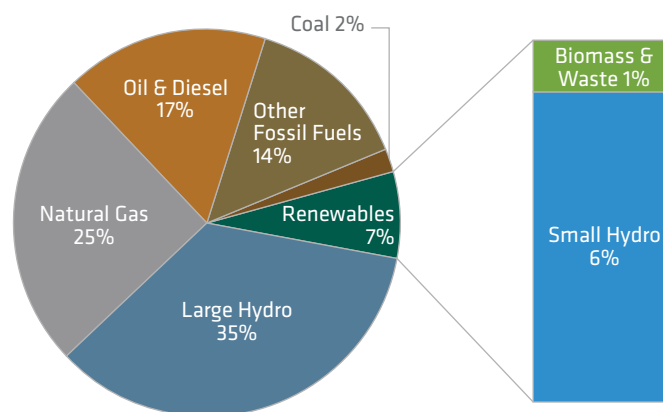
Peru has set a clean energy mandate of 5% of electricity consumption by 2013 and employs reverse auctions to contract new clean capacity. From 2009 to 2011, energy market regulator Organismo Supervisor de Inversión en Energía y Minas (Osinergmin) held two clean energy auctions which have helped leverage at least \$420m in clean energy investment and will add 588MW of clean energy capacity by 2014. Peru is one of the two countries in the region to successfully include grid-connected solar photovoltaics in its auction system⁹.

Still, follow-through on the implementation of policy frameworks was seen as a challenge by policy experts consulted for this study. This may have been due to the country's failure to fulfill its 7.8% ethanol and 5% biodiesel blending mandates set in 2007. Despite the blending mandate challenge, Peru secured the highest score for the growth rate

of its biofuels sector relative to its peers. Biofuels production capacity grew by 86% from 2009 through 2010. Peru's 186mLpa capacity is a fraction of Brazil's 29,986mLpa, but the sector's growth is significant on a proportional basis.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)

8GW Total



Source: Bloomberg New Energy Finance, Dirección General de Electricidad (DGE) from the Ministerio de Minas y Energía (MINEM)

KEY POLICIES

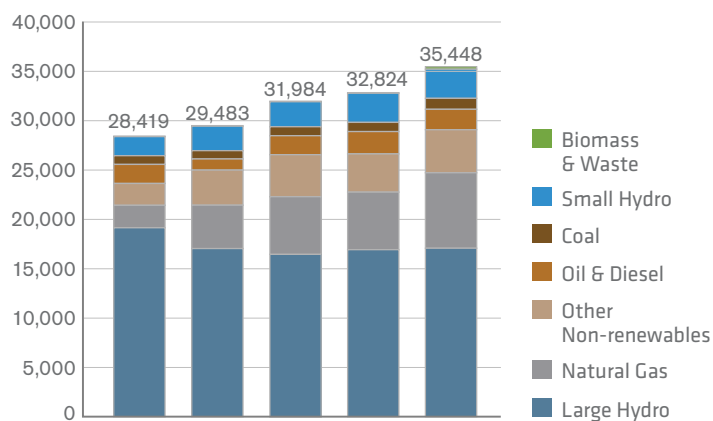
Qty	Category
	Available Policy Type; Unavailable Policy Type
3	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

9. Note: The other country is Argentina.

TOTAL ANNUAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Dirección General de Electricidad (DGE) from the Ministerio de Minas y Energía (MINEM)

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

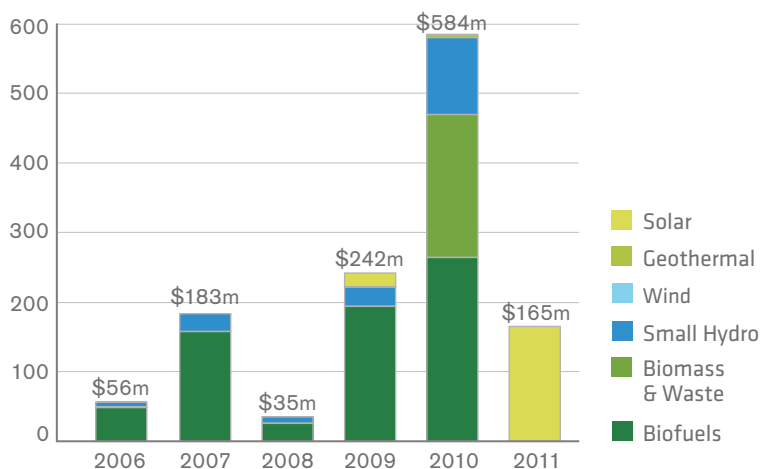
II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 4 / Score 1.397

Cumulative investment in Peru's low-carbon energy sector totaled \$1.3b from 2006 to 2011. Of this, 55% went into biofuels projects and companies, 16% into biomass & waste, 14% into small hydro, 14% into solar and 0.4% into geothermal. Local financial institutions have played a minor role in funding this activity, depressing Peru's score in the indicators assessing local investments by local players. Looking ahead, lack of local financial support may ultimately slow foreign clean energy investment as overseas investors often seek domestic partners on large projects.

By contrast, Peru is home to a well-developed green micro-finance sector and scored second highest in the indicators measuring development in this area. In absolute terms, Peru did even better. With a total of 11 microfinance institutions (MFIs) offering some sort of green micro financial product, Peru has the greatest number of green MFIs in operation. Still, the average cost of green micro-debt is relatively high at 10.3%. To date, a total of \$245,574 in green micro credit has been disbursed to some 759 low income borrowers and micro, small and medium enterprises.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY BY SOURCE, 2006–2011 (\$m)



Source: Bloomberg New Energy Finance.

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

62 MFIs

How many offer green micro loans:

11 MFIs

Average costs of green micro loans:

10.3%

Total amount of green micro loans disbursed:

\$245,574

Number of green micro borrowers:

759

Green MFI Organizations:

Caja Municipal de Arequipa

Caja Huancayo

Caja Municipal Sullana

COOPAC Norandino

COPEME

Caja de Ahorro y Crédito Profinanzas

FONDESURCO

IDESI Región Grau

Libélula Comunicación Ambiente y Desarrollo

MicroEnergy International

Popular SAFI

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 62 MFIs in Peru, 52 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 4 / Score 1.891

Peru also maintained fourth position in Parameter III with a score of 1.89. There are two financial institutions operating locally that provide services to the Peruvian clean energy sector. Banco Internacional de Peru SAA has been a resource for local project financing, and BBVA Banco Continental SA has provided corporate finance services. The Agencia de Promoción de la Inversión Privada (ProInversión) has aided the pursuit of financing abroad for energy projects built locally.

In terms of its local clean energy value chain, Peru has an established infrastructure for small hydro, biomass & waste, and biofuels. These relatively developed value chains have aided deployment of 532MW of small hydro projects and 53MW of biomass incineration projects. The biofuels sector has been assisted by the establishment of blending mandates that provide structure for ethanol and biodiesel development and distribution.

Peru's renewable energy auctions have helped launch several locally based developers, but wind-focused firms have little local supply-chain infrastructure to support them and will probably source equipment from outside the country. In terms of service providers, Peru has technical service companies such as Pacific Protección Integral de Recursos SAC, a Lima-based environmental consultancy as well as Muniz Ramirez Perez-Taiman & Luna-Victoria Abogados providing law services to the clean energy sector.

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
●	Corporate Finance
	Funds
	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance

Note: Refers to type of institutions that finance clean energy projects

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
3	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
3	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
1	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
4	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
1	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
2	Wind	Bearings; Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
	Developers & Utilities	Integrated Service Provider
1	Marketing Services	Distributor; Market Research; PR Company
3	Financial & Legal Services	Banking-Corporate; Banking-Custody, Trust & Deposit; Insurance Provider; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 10 / Score 1.312

This was Peru's weakest parameter, where it scored 1.31 and ranked 10th, after Nicaragua. The country was hindered by its poor performance in the offset project volume indicator, with 130.8 tCO₂/\$m offsets. However, Peru did score well on the Clean Development Mechanism validation presence indicator. Peru has 10 companies

providing validation services, the same as Nicaragua and the Dominican Republic, ranking jointly second after Brazil and Mexico, which each have 13. Peru can perform better on companies' emissions and efficiency efforts to improve its performance in this indicator, which could boost its overall *ClimateScope* rank.

CARIBBEAN



Suriname

Paramaribo

GDP¹: **\$5.1bn**
 6-Year Economic Growth Rate²: **5%**
 Population³: **0.5m**
 Total Clean Energy Investments, 2006–2011⁴: **N/A**
 Installed Power Capacity⁵: **277MW**
 Renewable Share⁶: **N/A**
 Total Clean Energy Generation⁷: **N/A**
 Top Energy Authority: **Ministry of Natural Resources**

OVERALL RANKING

26

OVERALL SCORE

0.29

PARAMETER	RANKING	SCORE
I. Enabling Framework	23	0.584
II. Clean Energy Investment & Climate Financing	24	0.176
III. Low-Carbon Business & Clean Energy Value Chains	26	0.063
IV. Greenhouse Gas Management Activities	22*	N/A

*Five countries did not have and/or did not disclose information pertinent to the indicators assessed on Parameter IV – Greenhouse Gas Management Activities. Thus, they were not assigned a score and were automatically ranked 22nd. These countries were: Barbados, Haiti, Suriname, Trinidad and Tobago, and Venezuela.

SUMMARY

Suriname finished last among the 26 nations examined with an overall *Climatescope* score of 0.29. The country scored below 20th on the four major parameters. It had no documented CDM projects or companies disclosing Greenhouse Gas Management Activities and thus did not receive a score for Parameter IV.

Suriname supplied 4.47m tonnes of bauxite to the world's aluminium industry in 2010, representing 1.5% of total global production⁸. SURALCO, a joint venture between Alcoa and the government of Suriname, is both the country's largest

electricity consumer and supplier. Fossil fuel-powered plants account for half its nameplate capacity, despite the fact that a large hydro project contributed to 80% of total generation in 2011.

Suriname received a relatively positive score for its power demand growth rate. From 2010 to 2011, demand grew 8.5%, reaching 182MW, and economic growth has been strong. Both factors suggest a potential opportunity for clean energy development.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.
 3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: N/A refers to no clean energy investment commitments for the 2006 to 2011 period.
 5. Source: N.V. Energiebedrijven Suriname (NV EBS)
 6. Ibid. Note: N/A refers to no renewable installed capacity.
 7. Ibid. Note: N/A refers to no renewable power generation available.
 8. Bloomberg Index

Until last year there had been virtually no clean energy investment in Suriname. However, in 2011, the country received \$4.8m in grants to foster renewables and bioenergy develop-

ment. Going forward, SURALCO could play a significant role in helping jump-start an industry which has not seen government incentives.

PARAMETERS SUMMARY

Suriname was the weakest performer in the *Climatescope* index, and to date its national government has shown little interest in policies that encourage clean energy use or energy efficiency improvements. The country's 97% electrification rate has meant there have been no major rural electrification programs and a limited market for clean energy.

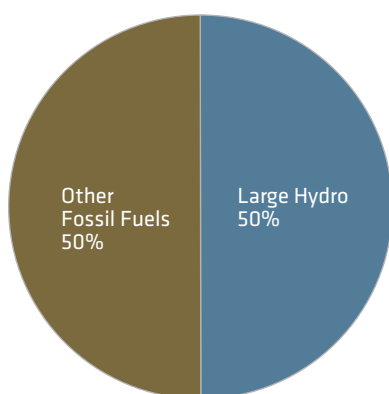
The government has a large role in the domestic power market via N.V. Energiebedrijven Suriname (NV EBS), its vertically integrated utility, which owns almost half of the installed capacity in the country representing 162MW of fossil fuel-powered capacity. The other half is supplied by the 139MW Afobaka large hydro plant owned by SURALCO, which the government partly owns.

The NV EBS plants are inefficient and only meet peak demand. Baseload power is provided by SURALCO's large hydro facility, which generated 1,111GWh in 2011, or 80% of all electricity generated that year. The large hydro facility was primarily constructed to meet SURALCO's power needs in the aluminium industry. Excess generation is sold to NV EBS for use by others.

Suriname scored relatively well in a few indicators. It received the highest possible mark for power demand growth rate, which grew at an average annual rate of 8.5% from 2010 to 2011 thanks in part to growing demand for

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (MW)

277MW Total



Source: Bloomberg New Energy Finance, N. V. Energiebedrijven Suriname (NV EBS)

alumina from China. From 2006 through 2011 there were no direct investments committed to clean energy in Suriname.

In 2011, the country received two grants totalling \$4.8m to help foster local renewables development. The Inter-American Development Bank (IDB) provided \$0.4m to support small hydro and bioenergy development, while the Global Environmental Facility (GEF) donated \$4.4m to encourage renewables and energy efficiency. These initiatives are aimed at addressing the needs of the population at large, not the bauxite industry.

Regarding Parameter III, Suriname has no financial institutions or service providers involved in clean energy and thus ranks at the bottom of the pack. The only score it received for that particular parameter refers to the existence of small hydro operation and maintenance, which represents one out of 40 possible sub-activities for six clean energy value chains. Additionally, Suriname did not receive a score for Parameter IV as there is no local activity related to greenhouse gas management or CDM projects.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
0	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers; Retailing/IOC
0	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development; System Integration
0	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
1	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance ; Power Purchase; Turbines
0	Solar	Balance of Plant; Cells; Ingots; Installation; Modules; Project Development; Raw Feedstock (solar-grade silicon); Wafers
0	Wind	Bearings, Blades; Construction/Installation; Gearboxes; Generators; O&M; Power Generator; Project Development; Turbines

Source: Bloomberg New Energy Finance

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

Trinidad & Tobago

GDP¹: **\$26.5bn**

6-Year Economic Growth Rate²: **2%**

Population³: **1.3m**

Total Clean Energy Investments, 2006–2011⁴: **\$222.5m**

Installed Power Capacity⁵: **1.8GW**

Renewable Share⁶: **N/A**

Total Clean Energy Generation⁷: **N/A**

Top Energy Authority:

Ministry of Energy and Energy Affairs

Port of Spain

OVERALL RANKING

23

OVERALL SCORE

0.42

PARAMETER	RANKING	SCORE
I. Enabling Framework	24	0.581
II. Clean Energy Investment & Climate Financing	19	0.481
III. Low-Carbon Business & Clean Energy Value Chains	18	0.438
IV. Greenhouse Gas Management Activities	22*	N/A

*Five countries did not have and/or did not disclose information pertinent to the indicators assessed on Parameter IV – Greenhouse Gas Management Activities. Thus, they were not assigned a score and were automatically ranked 22nd. These countries were: Barbados, Haiti, Suriname, Trinidad and Tobago, and Venezuela.

SUMMARY

Oil and natural gas-rich Trinidad and Tobago received an overall *Climatescope* score of 0.42 placing it 23rd among 26 countries assessed. Due to its fossil-fuel resource endowment the country relies entirely on non-renewable sources for electricity generation. Despite this, Trinidad and Tobago fared well in a few of the indicators comprising Parameters II and III. The nation has a low cost of debt and has a diversified set of clean energy service providers. Trinidad and Tobago's overall ranking, however, was depressed by a lack of significant investment in renewables since 2006. In all,

the country attracted \$222.5m in clean energy investments from 2006–2011, most of which went toward a facility to dehydrate ethanol imported from Brazil on its way to the US. Further similar investments now seem improbable given that the US has lifted its tariff on ethanol imported directly from Brazil, which created the stop-over dehydration opportunity for Caribbean nations. Once the draft legislation on renewables is approved we expect more diversified clean energy investments, which will encourage some displacement of fossil-based generation.

1. Source: International Monetary Fund, World Economic Outlook, April 2012.

Note: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.

2. Source: Ibid. Note: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: cumulative investment from 2006 to 2011.

5. Source: Regulated Industries Commission Notes: for 2011.

6. Ibid. Note: N/A refers to no renewable installed capacity.

7. Ibid. Note: N/A refers to no renewable power generation available.

PARAMETERS SUMMARY

Trinidad and Tobago did not score highly in any of four *Climatescope* parameters. The island country is the region's 16th largest economy, with \$26.5bn in gross domestic product thanks to its bustling oil and gas industry. But an abundance of local fossil fuels has probably hindered development of a local clean energy sector.

The only major clean energy policy on record in Trinidad and Tobago is a Green Fund from taxes on local business. However the fund, in effect since 2011, has yet to finance a single clean energy or energy efficiency project. In addition, the Ministry of Energy and Energy Affairs is currently developing a framework for the National Renewable Energy Policy which could help displace fossil-based generation. Meanwhile, the country's fossil-based power matrix translated to a low score for all six indicators comprising the clean energy penetration category of Parameter I.

Previously, Caribbean Basin Initiative (CBI) countries including Trinidad and Tobago could export ethanol to the US tariff-free. Brazilian producers would ship ethanol to Caribbean nations, offload the product, dehydrate it, then move it as CBI-qualified fuel to the US. This explains what is by far the most substantial clean energy investment in the country: an estimate of \$222.5m in 2008 to build a

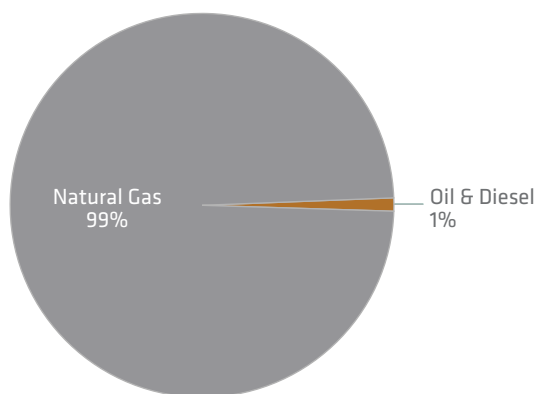
new dehydration plant. However, the tariff has now lapsed in the US, rendering Caribbean dehydration unnecessary. Solar has been the only other clean energy sector to attract substantial investment, with \$47,772 from the Global Environment Facility for two small-scale distributed photovoltaic projects.

Trinidad and Tobago received its highest score in the parameter assessing low-carbon businesses and clean energy value chains. The island nation has two of five segments of the biofuels value chains in place, including biofuels producers and engineering companies. It has one of four possible types of local clean energy finance providers. Among the providers is RBTT Merchant Bank, which funded the 40MW Hydroenergia del General small hydro plant in Costa Rica in 2006. Trinidad and Tobago has no reported Greenhouse Gas Management Activities or initiatives, thus it received no score on Parameter IV.

Looking ahead, further biofuels development appears unlikely. However, because Trinidad and Tobago is blessed with outstanding solar potential the country could see further solar development once the National Renewable Energy Policy is proposed and approved.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)

1.8GW Total



Source: Bloomberg New Energy Finance, Regulated Industries Commission (RIC)

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance

Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

SOUTH AMERICA



Uruguay

GDP¹: **\$50.9bn**

6-Year Economic Growth Rate²: **7%**

Population³: **3.4m**

Total Clean Energy Investments, 2006–2011⁴: **\$343m**

Installed Power Capacity⁵: **2.7GW**

Renewable Share⁶: **10%**

Total Clean Energy Generation⁷: **353GWh**

Top Energy Authority:

Ministry of Industry, Energy and Mines



● **Montevideo**

OVERALL RANKING

10

OVERALL SCORE

1.38

PARAMETER	RANKING	SCORE
I. Enabling Framework	8	1.930
II. Clean Energy Investment & Climate Financing	8	1.133
III. Low-Carbon Business & Clean Energy Value Chains	8	1.484
IV. Greenhouse Gas Management Activities	15	0.586

SUMMARY

With an overall *Climatescope* score of 1.38, Uruguay placed in the 10th spot among 26 countries in the region. The country fared moderately well on all four parameters, scoring best in Parameter I. Uruguay stood out for its 40% growth rate in clean energy installed capacity from 2009 to 2010 thanks to government-sponsored reverse auctions for wind and biomass power contracts. It also fared particularly well in the indicators analyzing commitments made by local financiers to fund local clean energy projects. Uruguay placed second, right behind Brazil, in terms of investments made by local players with a total of \$50m committed in the country, leveled by renewable total investments.

In response to energy supply shortages at the beginning of the decade the country has established an ambitious policy framework to ensure energy security. Uruguay was among the first countries in the region to set net metering laws. Thanks to reverse auctions, biomass and wind received substantial investments totaling \$280m from 2006–2011. Today, these two sectors represent 10% of the country’s 2.7GW installed power capacity and have the most robust clean energy value chains. Looking ahead, biomass and wind are likely to continue to play important roles thanks to planned auctions.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.

2. Source: Ibid. Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.

4. Source: Bloomberg New Energy Finance Notes: Cumulative investment from 2006 to 2011.

5. Source: Dirección Nacional de Energía (DNE), Ministry of Industry, Energy and Mines Notes: For 2011.

6. Ibid.

7. Ibid Notes: For 2010

I. ENABLING FRAMEWORK

Ranking 8 / Score 1.930

Uruguay ranked eighth on the Enabling Framework parameter with a 1.93 score, finishing just behind El Salvador and Chile. The country posted an exceptional growth rate for clean energy installed capacity, moving from 15MW to 280MW over four years. In 2010, biomass & waste accounted for nearly 9% of the country's 280MW installed capacity.

Uruguay's clean energy trajectory can be traced to a power shortage caused by low water reservoirs in the early 2000s, which left its large hydro-dependent power matrix exposed to power imports. Seeking to diversify, in 2008 the government set a national clean energy target to add 200MW of biomass and 300MW wind by 2015. To achieve that, Uruguay's vertically integrated utility Administración Nacional de Usinas y Trasmisiones Eléctricas (UTE) has conducted sector-specific reverse auctions, which have yielded very competitive prices, especially for wind.

Uruguay fared relatively well in the clean energy policy indicator thanks to its pioneering net metering laws and its biofuels blending mandate. Still, the country's diversified policy framework needs to prove its effectiveness over the long term. The country's policy and regulation score was likely hurt by its largely unsuccessful attempts at power sector reform.

KEY POLICIES

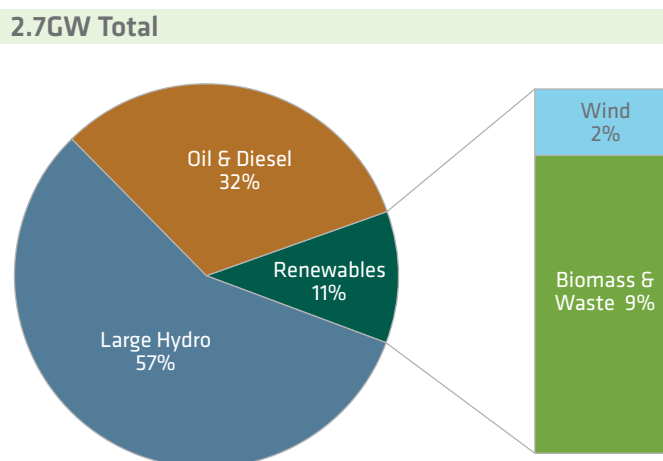
Qty	Category
	Available Policy Type; Unavailable Policy Type
4	Energy Market Feed-in tariff; Energy targets; Auction; Biofuels blending mandate; Net metering; Other
	Equity Finance Grants; Incubators; Infrastructure funds; Other
	Debt Finance Funding; Export trade credit; Green bonds; Other
1	Tax-Based Accelerated depreciation; Tax relief; Income Tax; Import Duty; Tax rebate; Other
	Carbon Market Domestic cap & trade; Emissions reduction target; Project-based carbon credits; Other

Source: Bloomberg New Energy Finance.

Note: (Qty) refers to the number of clean energy policy types, not to the total number of policies. I.e. a country might have more than one regulation within a policy type. Text highlighted in green signifies there is at least one available policy type in the country.

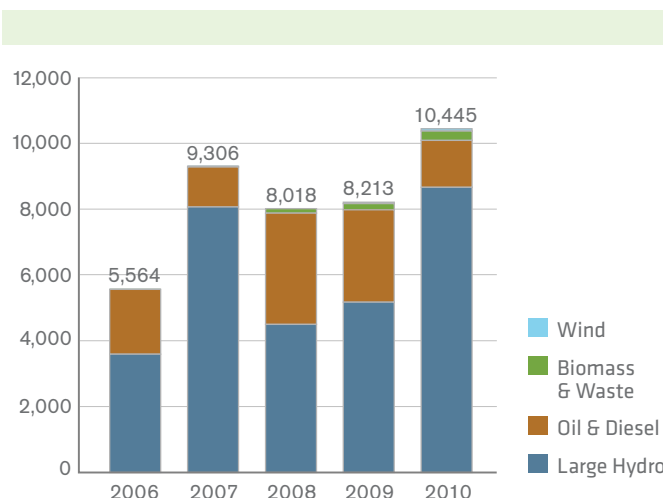
Uruguay's high electrification rate (97%) leaves little room for investors seeking to finance initiatives to bring residents onto the grid. However, the country gained points for its power market price attractiveness. Retail electricity prices average a relatively high \$0.21/kWh creating a potential opportunity for residential solar.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2011 (GW)



Source: Bloomberg New Energy Finance, Ministerio de Industria, Energía y Minería (MIEM) Dirección Nacional de Energía (DNE)

TOTAL ANNUAL ELECTRICITY GENERATION BY SOURCE, 2006-2010 (GWh)



Source: Bloomberg New Energy Finance, Ministerio de Industria, Energía y Minería (MIEM) Dirección Nacional de Energía (DNE)

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

II. CLEAN ENERGY INVESTMENT AND CLIMATE FINANCING

Ranking 8 / Score 1.133

Uruguay ranked eighth in Parameter II with a score of 1.13. Success in this parameter was due to the relatively low cost of sovereign debt (4.5%) and the substantial local financing commitments (\$50m), levelized by total renewable investments, that have taken place in the country. By contrast, the country's green microfinance sector, like its mainstream microfinance sector, remains small with only one such institution offering some type of green product to low-income borrowers or micro, small, and medium enterprises.

From 2006 to 2011, cumulative clean energy investments into Uruguayan clean energy projects and companies totaled \$343m, with the lion's shares going into biomass (\$175) and wind (\$105). Biofuels was also a prominent sector, attracting \$50m in 2011. In fact, it was the financing in 2011 of a biofuel plant developed and funded by Alcoholes del Uruguay (ALUR) that helped Uruguay place second in the local investment by local players indicator, just below Brazil. In addition, the Banco de la República Oriental del Uruguay (BROU) and the Global Environment Facility (GEF) have played important roles as clean energy finance providers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:
5 MFIs

How many offer green micro loans:
1 MFIs

Average costs of green micro loans:
2.6%

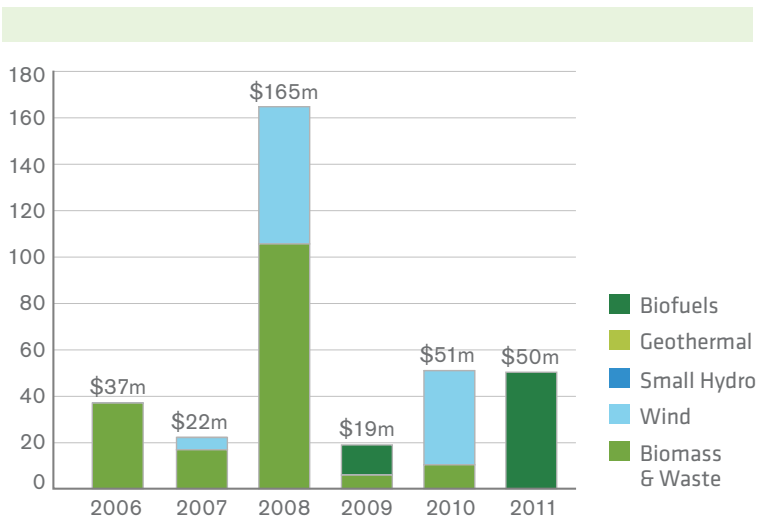
Total amount of green micro loans disbursed:
\$50,000

Number of green micro borrowers:
10

Green MFI Organizations:
FUNDASOL

Source: Bloomberg New Energy Finance.
Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 5 MFIs in Uruguay, 4 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY BY SOURCE, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance.
Note: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.
Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

LOCAL INVESTMENTS BY LOCAL PLAYERS

2011 Total	\$50m
Top Local Investor	
1st	Alcoholes del Uruguay \$50m

Source: Bloomberg New Energy Finance.
Note: Figures only include investments in new build clean energy projects in 2011, do not include refinancing or acquisitions.

III. LOW-CARBON BUSINESS AND CLEAN ENERGY VALUE CHAINS

Ranking 8 / Score 1.484

Uruguay performed well in Parameter III, scoring 1.48 and placing eighth. As might be expected given local investment trends, biomass and wind have the most developed value chains in the country. Nonetheless, Uruguay is home to nascent solar and biofuels sectors, with a few companies providing equipment or services to these clean energy segments. Alcoholes del Uruguay (ALUR) is the leading biofuel producer in the country and Soledo is beginning to tap into Uruguay's promising solar market. With few clean energy service providers, Uruguay is poised to attract newcomers.

CLEAN ENERGY VALUE CHAINS BY SECTOR

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Biofuels	Distribution & Blending; Engineering Companies; Feedstock Suppliers; Producers ; Retailing/IOC
4	Biomass & Waste	Feedstock Supply; Manufacturing Equipment; Power Generation; Project Development ; System Integration
0	Geothermal	Balance of Plant; Exploration/Production Drilling; Operation & Maintenance; Power Purchase; Pre-Drilling Exploration; Project Development; Turbine & Power Block; Well Completion & R.C. Resource
0	Small Hydro	Civil Works/Builder; Engineering; Operation & Maintenance; Power Purchase; Turbines
2	Solar	Balance of Plant; Cells; Ingots; Installation ; Modules; Project Development ; Raw Feedstock (solar-grade silicon); Wafers
3	Wind	Bearings, Blades; Construction/Installation ; Gearboxes; Generators; O&M; Power Generator ; Project Development ; Turbines

Source: Bloomberg New Energy Finance

Note: Refers to key manufacturing segments for each of the clean energy sectors. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

IV. GREENHOUSE GAS MANAGEMENT ACTIVITIES

Ranking 15 / Score 0.586

With a score below one (0.59) for Greenhouse Gas Management Activities, Uruguay ranked 15th for this parameter. Uruguay currently has very few Clean Development Mechanism (CDM) projects. Those that do exist are in the biomass & waste sector. Nonetheless, the country had a high score on the offset project volume indicator,

FINANCIAL INSTITUTIONS IN CLEAN ENERGY

●	Banks
	Corporate Finance
	Funds
●	Private Equity/Venture Capital

● = At least one institution active in that segment in the country.

Source: Bloomberg New Energy Finance

Notes: Refers to type of institutions that finance clean energy projects.

CLEAN ENERGY SERVICE PROVIDERS

Qty	Sector	Available Sub-Sector; Unavailable Sub-Sector
1	Ancillary Products & Services	Consultancy-O&M; Consultancy-Technical ; Contract Maintenance; Contract Manufacturing; Control Room Systems; Education & Training; Inspection & Maintenance; Specialist Services; Testing & Certification Services
0	Developers & Utilities	Integrated Service Provider
0	Marketing Services	Distributor; Market Research; PR Company
2	Financial & Legal Services	Banking-Corporate ; Banking-Custody, Trust & Deposit; Insurance Provider ; Lawyer-Commercial; Lawyer-Financial Markets; Lawyer-Project Finance; Recruitment/Search

Source: Bloomberg New Energy Finance

Note: Refers to key service segments for clean energy. Text highlighted in green signifies there is at least one company in the sub-sector active in the country.

with high carbon project abatement relative to its GDP and CO₂ emissions. Uruguay also has six companies that can act as CDM validators. Still, the country did not receive a score on three indicators: CDM risk, companies' efforts for emission reduction, and efficiency. This explains its relatively low score on this parameter.

SOUTH AMERICA



Venezuela

Caracas

GDP¹: **\$374.1bn**
 6-Year Economic Growth Rate²: **4%**
 Population³: **29m**
 Total Clean Energy Investments, 2006–2011⁴: **\$207m**
 Installed Power Capacity⁵: **25GW**
 Renewable Share⁶: **0.1%**
 Total Clean Energy Generation⁷: **131GWh**
 Top Energy Authority:
Ministry of the People’s Power for Electric Energy

OVERALL RANKING

24

OVERALL SCORE

0.37

PARAMETER	RANKING	SCORE
I. Enabling Framework	25	0.575
II. Clean Energy Investment & Climate Financing	23	0.253
III. Low-Carbon Business & Clean Energy Value Chains	15	0.594
IV. Greenhouse Gas Management Activities	22*	N/A

*Five countries did not have and/or did not disclose information pertinent to the indicators assessed on Parameter IV – Greenhouse Gas Management Activities. Thus, they were not assigned a score and were automatically ranked 22nd. These countries were: Barbados, Haiti, Suriname, Trinidad and Tobago, and Venezuela.

SUMMARY

Venezuela, the region’s largest oil producer, scored below one (0.37) overall. It ranked 24th out of 26 countries in its ability to attract capital for low-carbon energy sources and efforts to build a green economy, ahead of the small economies of Bahamas and Suriname. Venezuela’s Enabling Framework has been unattractive to local and foreign investors. This is reflected in the country’s low scores in three out of four parameters.

Venezuela has the region’s third largest gross domestic product at \$374.1bn, which helps explain its somewhat

better performance in the low-carbon value chains parameter. To date, all clean energy investment in Venezuela has targeted the country’s small hydro and wind sectors. Looking ahead, investment flows will largely depend on a more stable and predictable environment for investors. The country’s oil production capacity, and the degree to which it subsidizes oil consumption, also will play important roles in renewable energy uptake.

1. Source: International Monetary Fund, World Economic Outlook, April 2012
 Notes: Gross domestic product based on purchasing power parity (PPP) valuation of country GDP (current international dollar) for 2011.
 2. Source: Ibid Notes: Calculation based on compounded annual economic growth rate for the 2006 to 2011 period.

3. Source: International Monetary Fund Notes: Population for 2010 period in millions.
 4. Source: Bloomberg New Energy Finance Notes: Cumulative investments from 2006 to 2011.
 5. Source: Ministerio del Poder Popular para la Energía Eléctrica (MPPEE) Notes: For 2010.
 6. Ibid.
 7. Ibid.

PARAMETERS SUMMARY

Venezuela's relatively low *Climatescope* score is largely due to the weak Enabling Framework it has established, the minor clean energy investment it has attracted, and the comparatively few Greenhouse Gas Management Activities it has undertaken. As the region's largest oil exporter, the country ranked below 20th in three out of four parameters assessed. It performed relatively better in the parameter measuring the availability of clean energy equipment manufacturers, service and finance providers.

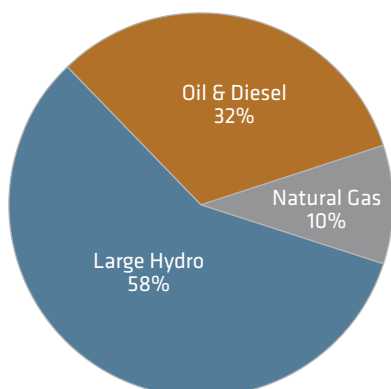
An abundance of fossil fuel reserves has made it possible for Venezuela to defer clean energy policymaking. The government also exerts tight control over both the energy and power sectors, particularly via subsidies that distort prices. Thanks to a 98% electrification rate, there is little need for government-sponsored rural electrification programs deploying clean energy. Renewables currently represent less than 1% of total 25GW installed capacity.

From 2006 to 2011, Venezuela attracted a cumulative total \$207m for wind and small hydro projects. The majority of this came from the Venezuelan government via state-owned oil company Petróleos de Venezuela SA (PDVSA) and public utility Corpoelec. However, since the start of 2009 investment in clean energy has dried up entirely. On the plus side, the green microfinance sector is stirring; two MFIs offered about \$200,000 to some 200 low-income borrowers, according to *Climatescope* survey respondents.

There are relatively few clean energy value chain players present in Venezuela, though the country is home to at least one biofuels producer and one wind project developer. There are only two service providers operating locally; both are active in the financial and legal sector.

TOTAL INSTALLED POWER CAPACITY BY SOURCE, 2010 (GW)

25GW Total

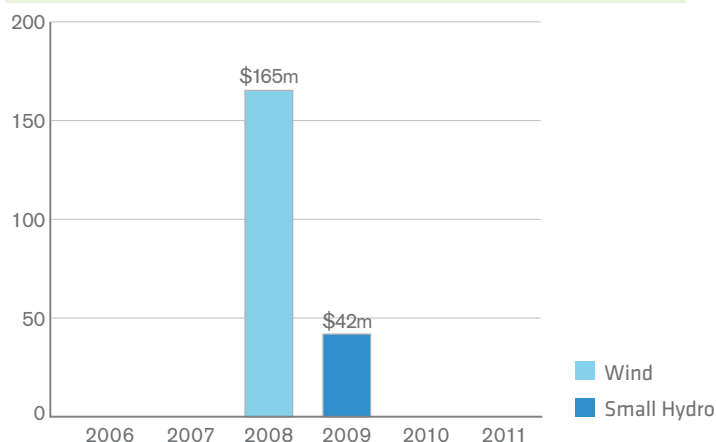


Source: Bloomberg New Energy Finance, Ministerio del Poder Popular para la Energía Eléctrica

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

To date, Venezuela's domestic energy policies have been driven by its abundant petroleum resources. Until policy-makers make clean energy investment a priority for reasons of supply diversification or greenhouse-gas reduction, this regional power will carry a *Climatescope* score that is inconsistent with its economic strength.

TOTAL ANNUAL INVESTMENTS IN CLEAN ENERGY, 2006-2011 (\$m)



Source: Bloomberg New Energy Finance

Notes: Total investments includes: Asset Finance, Corporate Finance and Venture Capital/Private Equity commitments.

Disclaimer: Some values cannot be graphically represented due to scale, please see source data for the complete numbers.

GREEN MICROFINANCE AT A GLANCE

Number of MFIs in the country:

5 MFIs

How many offer green micro loans:

2 MFIs

Average costs of green micro loans:

16%

Total amount of green micro loans disbursed:

\$200,100

Number of green micro borrowers:

200

Green MFI Organizations:

Fundación Eugenio Mendoza

Fundación Programa Andes Tropicales

Source: Bloomberg New Energy Finance.

Note: Figures are based on a survey conducted by BNEF from October 2011 to January 2012 with a total of 448 microfinance institutions based in LAC. 80% response rate for the survey. Of 5 MFIs in Venezuela, 4 responded to the survey. Not all organizations that offer green microfinance reported the average cost of green micro loans, the total amount disbursed and green microfinance borrowers.

APPENDICES

An aerial photograph of the Atacama Desert in northern Chile. The landscape is characterized by its extreme aridity, with a complex network of erosion patterns, including radial and concentric rills, and numerous salt flats. A small town with a grid-like street pattern and some greenery is visible on the left side of the image. The overall color palette is dominated by various shades of tan, brown, and beige, with some darker, rocky outcrops scattered throughout.

The Atacama Desert, in northern Chile, is one of the world's driest deserts and a promising region for solar project development.

APPENDIX A

GREEN MICROFINANCE INSTITUTIONS

COUNTRY	ORGANIZATION	PHONE	WEBSITE
ARGENTINA	Capital para PYMES	(54) 11 4331 5043	www.feg.org.ar
	Emprenda	(54) 11 4642 5802	www.emprenda.com.ar
	Fundación Pro Vivienda Social (FPVS)	(54) 11 4321 2700	www.fpvs.org
BOLIVIA	ANED	(591) 2241 8716	www.aned.org
	Banco FIE	(591) 2248 5222	www.bancofie.com.bo
	CIDRE	(591) 4423 2566	www.cidre.org.bo
	Fundación Profin	(591) 2701 9425	www.fundacion-profin.org
	HIVO	(591) 6733 8468	—
	ProCredit - Bolivia	(591) 2245 6538	www.losandesprocredit.com
BRAZIL	Agência do Credito	(55) 49 3621 0803	www.extracredi.com.br
	ASCOOB Central	(55) 75 3614 8482	www.ascoobcentral.com.br
	Banco do Vale	(55) 47 3222 1338	—
	Banco do Planalto Norte	(55) 47 9114 4299	—
	BANCRI	(55) 47 3045 6030	www.bancri.org.br
	CEADE	(55) 71 3327 2021	—
	ICC MAU-CE	(55) 55 3744 6372	—
	Lander	(55) 48 3029 3080	—
	SEBRAE	(55) 61 9962 5658	www.sebrae.com.br
COLOMBIA	AYF	(57) 1348 888	—
	Bancoldex	(57) 1315 2687	www.bancoindex.com
	FUNDESMAG	(57) 9762 0031	www.fundesmag.org
COSTA RICA	APIAGOL	(506) 2775 0098	www.apiagol.com
	ASPROA	(506) 2760 1425	—
	Central American Bank for Economic Integration	(506) 2207 6559	www.bcie.org
ECUADOR	CESOL ACJ	(593) 2261 7029	—
	COAC Chone	(593) 5269 5396	www.coopchone.fin.ec
	Faces	(593) 7257 5237	www.faces.org.ec
EL SALVADOR	SAC Integral SA	(503) 2250 6000	www.integral.com.sv
	Bancofit	(503) 2261 7900	www.bancofit.com.sv
	ProCredit - SLV	(503) 2267 4400	www.bancoprocredit.com.sv
GUATEMALA	SAC Integral SA	(503) 2250 6000	www.integral.com.sv
	FAFIDESS	(502) 2311 5800	www.fafidess.org
	FUNDESPE	(502) 7763 4984	—
HAITI	Fonkoze	(1) 202 628 9033	www.fonkoze.org

APPENDIX A *Continued*

COUNTRY	ORGANIZATION	PHONE	WEBSITE
HONDURAS	ADICH	(504) 2785 1542	www.adich.hn
	Central American Bank for Economic Integration	(506) 2207 6559	www.bcie.org
	CACIL	(504) 2783 0658	www.cacil.hn
	Credisol Honduras	(504) 2440 0577	—
	FUNDAHMICRO	(504) 2239 0158	www.fundahmicro.hn
	FUNED	(504) 2221 4178	www.funedvf.org
MEXICO	ALSOL	(52) 97 1678 1434	www.alsolchiapas.org
	SAC Integral SA	(503) 2250 6000	www.integral.com.sv
	DAI - Mexico	(52) 55 5250 6011	—
	Te Creemos	(52) 55 5584 2233	www.tecreemos.com
	UPS	(52) 92 4247 0252	—
NICARAGUA	AFODENIC	(505) 2270 7998	—
	Asociación Alternativa	(505) 2522 3362	www.alternativanica.org
	Caritas Esteli	(505) 2713 2040	—
	CEPRODEL	(505) 8465 5058	www.ceprodel.com.ni
	Coop 20 de Abril	(505) 2735 5128	www.cooperativa20deabril.coop
	Fondo de Desarrollo Local	(505) 2277 4245	—
	FUNDENUSE	(505) 2732 2329	—
	FUNDESER	(505) 2268 5131	—
	MiCredito	(505) 8973 4763	—
	Prestanic	(505) 2268 5230	www.prestanic.org.ni
PARAGUAY	Fundación Paraguaya	(595) 21 609 290	www.fundacionparaguaya.org.py
	Vision Banco	(595) 21 615 3383	www.visionbanco.com
PERU	Caja Municipal de Ahorro y Credito Arequipa	(51) 5 422 0023	—
	CMAC – Huancayo	(51) 6 448 1000	www.cajahuancayo.com.pe
	CMAC – Sullana	(51) 7 328 4400	www.cmac-sullana.com.pe
	COOPAC Norandino	(51) 7 643 3327	www.coopacnorandino.com
	CRAC Profinanzas	(51) 1 581 1174	—
	COPEME	(51) 1 470 2666	www.copeme.org.pe
	FONDESURCO	(51) 5 460 8048	—
	IDESI Region Grau	(51) 7 332 7925	—
	Libelula Comunicacion Ambiente y Desarrollo	(51) 1 652 7320	www.libelula.com.pe
	MicroEnergy International	(49) 176 642 39 739	www.microenergy-international.com
	Popular SAFI	(51) 1 428 3820	www.popular-safi.com
URUGUAY	FUNDASOL	(598) 2 400 2020	www.fundasol.org.uy
VENEZUELA	Fundación Eugenio Mendoza	(58) 212 903 0555	www.fundacioneugeniomendoza.org.ve
	Fundación Programa Andes Tropicales	(58) 274 263 8633	www.andestropicales.org

Note: There are nine countries with no green microfinance institutions, thus they are not featured here. They include: Bahamas, Barbados, Belize, Chile, Dominican Republic, Guyana, Jamaica, Panama, Suriname and Trinidad and Tobago.

APPENDIX B

LOCALLY-BASED CLEAN ENERGY INVESTORS, 2011

COUNTRY	ORGANIZATION	SECTOR OF INVESTMENT	WEBSITE
ARGENTINA	Banco de Inversión y Comercio Exterior	Solar	www.bice.com.ar
BARBADOS	First Caribbean International Bank Ltd	Wind	www.cibcfib.com
BRAZIL	Banco do Brasil	Wind, Biofuels	www.bb.com.br
	Banco Itaú BBA	Wind	www.itau.com.br
	Banco Nacional de Desenvolvimento Econômico e Social (BNDES)	Wind, Small Hydro, Biomass & Waste, Biofuels	www.bndes.gov.br
COLOMBIA	Banco de Bogotá	Energy Efficiency	www.bancodebogota.com
	BBVA Colombia	Energy Efficiency	www.bbva.com.co
COSTA RICA	Banco Internacional de Costa Rica	Wind	www.bicsa.com
MEXICO	Nacional Financiera	Solar	www.nafin.com

APPENDIX C

LOCALLY-BASED ACTIVE VENTURE CAPITAL AND PRIVATE EQUITY INVESTORS, 2011

COUNTRY	ORGANIZATION	SECTOR INVESTED	WEBSITE
BRAZIL	BNDES	Wind	www.bndes.gov.br
	Estater Gestão de Investimentos Ltd	Wind	—
	Unipar Participações	Wind	www.unipar.ind.br
	Darby Stratus Administração de Investimentos	Wind	—
	Explora Investimentos Gestão de Recursos Ltda	Wind	www.explorainvest.com.br
	Pragma Gestão de Patrimônio	Solar	www.pragmapatrimonio.com.br
MEXICO	Arancia Industrial	Biofuels	www.arancia.com.mx
PANAMA	Grupo Ecos	Solar	www.grupoecos.com

APPENDIX D

LOCALLY-BASED CLEAN ENERGY CREDIT PROVIDERS, 2006–2011*

COUNTRY	ORGANIZATION	INVESTMENT TYPE	WEBSITE
ARGENTINA	Banco de Inversión y Comercio Exterior	Asset Finance	www.bice.com.ar
	Banco de la Nación Argentina	Asset Finance	www.bna.com.ar
	Nuevo Banco de Entre Ríos	Asset Finance	www.nuevobersa.com.ar
	Nuevo Banco Del Chaco	Asset Finance	www.nbch.com.ar
BARBADOS	First Caribbean International Bank Ltd	Asset Finance	www.cibcfib.com
BRAZIL	Banco Bradesco	Asset Finance	www.bradesco.com.br
	Banco da Amazônia	Asset Finance	www.bancoamazonia.com.br
	Banco de Desenvolvimento de Minas Gerais	Asset Finance	www.bdmg.mg.gov.br
	Banco do Brasil	Asset Finance	www.bb.com.br
	Banco do Estado do Rio Grande do Sul	Asset Finance	www.banrisul.com.br
	Banco Itaú BBA	Asset Finance, Corporate Finance	www.itau.com.br

APPENDIX D *Continued*

COUNTRY	ORGANIZATION	INVESTMENT TYPE	WEBSITE
BRAZIL	Banco Nacional de Desenvolvimento Econômico e Social	Asset Finance, Corporate Finance	www.bndes.gov.br
	Banco Santander Brasil	Asset Finance	www.santander.com.br
	Caixa Econômica Federal	Asset Finance, Corporate Finance	www.caixa.gov.br
	Conselho Integrado de Desenvolvimento de Minas Gerais	Asset Finance	www.conselhos.mg.gov.br
	Finexim	Asset Finance	www.finexim.com
	Superintendência do Desenvolvimento do Nordeste	Asset Finance	www.sudene.gov.br
CHILE	Banco Bice	Asset Finance	www.bice.cl
	Corporación de Fomento de la Producción	Asset Finance	www.corfo.cl
COLOMBIA	Banco de Bogotá	Asset Finance	www.bancodebogota.com
	Bancolombia	Credit Line	www.grupobancolombia.com
	BBVA Colombia	Asset Finance	www.bbva.com.co
COSTA RICA	Banco Internacional de Costa Rica	Asset Finance	www.bicsa.com
	Banco Nacional de Costa Rica	Asset Finance	www.bncr.fi.cr
DOMINICAN REPUBLIC	Banco BHD	Credit Line	www.bhd.com.do
EL SALVADOR	Banco Multisectorial de Inversiones	Credit Line	www.bandosal.gob.sv
JAMAICA	Development Bank of Jamaica Limited	Credit Line	www.dbankjm.com
MEXICO	Banco Nacional de Comercio Exterior	Asset Finance	www.bancomext.com
	Banco Nacional de Obras y Servicios Públicos	Asset Finance	www.banobras.gob.mx
	BBVA Bancomer	Asset Finance	www.bancomer.com.mx
	Grupo Financiero Banorte	Asset Finance	www.banorte.com
	Nacional Financiera	Asset Finance	www.nafin.com
PERU	Banco Internacional del Peru	Asset Finance	www.interbank.com.pe
TRINIDAD & TOBAGO	RBTT Merchant Bank Ltd	Asset Finance	www.rbtt.com
URUGUAY	Banco de la República Oriental del Uruguay	Asset Finance	www.bancorepublica.com.uy
ARGENTINA BOLIVIA BRAZIL COLOMBIA ECUADOR PANAMA PERU URUGUAY VENEZUELA	Corporación Andina de Fomento	Asset Finance, Corporate Finance	www.caf.com
COSTA RICA EL SALVADOR GUATEMALA HONDURAS NICARAGUA PANAMA	Central American Bank for Economic Integration	Asset Finance, Corporate Finance	www.bcie.org

*Financial institutions are divided by investment type, defined as:

Asset Finance: all new build, refinancing and acquisitions of renewable energy projects. This includes both electricity generation and biofuels production assets. Projects may be financed via balance sheets of the project owners, or through financing mechanisms such as: syndicated equity from institutional investors, or project debt from banks.

Corporate Finance: later-stage investments in clean energy technology companies, fundraising on the public markets, debt financing arrangements, and coverage of investor

exits made through either Mergers & Acquisition type buy-outs or the closing of positions in publicly-quoted organizations. It includes: Mergers & Acquisitions, Public Markets, Joint Ventures, Corporate Debt and Funds.

Credit Line: availability of lines of credit from financial institutions that are specifically aimed at renewable energy-related projects and energy efficiency initiatives.

APPENDIX E

LOCALLY-BASED CLEAN ENERGY-FOCUSED FUNDS, 2006–2011*

COUNTRY	FUND NAME	FUND MANAGER	INVESTMENT FOCUS
ARGENTINA	Argentine Carbon Fund	Argentine Secretariat of Environment and Sustainable Development	Carbon Emissions Trading
BRAZIL	AG Angra Infra-Estrutura Fundo de Investimento em Participações	AG Angra Investimentos Ltda	Energy & Infrastructure
	ASM CER Fund	ASM Asset Management DTVM SA	Carbon Emissions Trading
	BNDES Biotechnology and Nanotechnology Venture Capital Fund	Banco Nacional de Desenvolvimento Econômico e Social	Clean Energy
	BNDES Brazil Sustainability Fund	Latour Capital do Brasil Ltda	Carbon Emissions Trading
	BR Investimentos Clean Energy Fund	BR Investimentos	Clean Energy
	Brazil Agro Energy Fund	Companhia Paulista de Empreendimentos Energéticos	Clean Energy
	Brazil Energy Fund	Banco BTG Pactual	Clean Energy
	Brazil Mezzanine Infrastructure Fund	Darby Stratus Administração de Investimentos Ltda	Energy & Infrastructure
	Brazilian National Climate Change Fund	Banco Nacional de Desenvolvimento Econômico e Social	Climate Change
	Bunge Emissions Fund	Ecopart Investimentos	Carbon Emissions Trading
	Bunge Methane Investment Company ("BMIC")	Ecopart Investimentos	Carbon Emissions Trading
	Clean Technology Fund LP	GDF Suez Energy Latin America	Clean Energy
	EcoEnergia Fundo de Investimentos	Multi Commercial Bank DTVM	Carbon Emissions Trading
	FIP Caixa Ambiental	Caixa Econômica Federal	Environment / Cleantech
	FIP Terra Viva	DGF Investimentos	Clean Energy
	Fundo de Investimento do Fundo de Garantia do Tempo de Serviço (FI-FGTS)	Caixa Econômica Federal	Energy & Infrastructure
	Fundo de Investimento em Participação FIP Floresta do Brasil	Claritas Investimentos e Participações Ltda	Environment / Cleantech
	Fundo de Investimento em Participação Sita Sonar Energia	Sita Sonar Gestão de Recursos Ltda	Clean Energy
	Green Capital Agrotech	Green Capital Investimentos Ltda	Energy & Infrastructure
	InfraBrasil	Banco Santander Brasil	Energy & Infrastructure
	Performa Investimentos	Performa Investimentos Ltda	Environment / Cleantech
	Rio Bravo Fip de Energia I	Rio Bravo Investimentos DTVM Ltda	Clean Energy
Tagus Clean Energy	Mercatto Investimentos	Clean Energy	
The Bioenergy Development Fund	Bioenergy Development Management Ltd	Clean Energy	
CHILE	EPower Nevasa Fund	Latitud Sur	Clean Energy
VENEZUELA	CAF-Netherlands CDM Facility	Corporación Andina de Fomento	Carbon Emissions Trading
	Latin American Carbon Initiative	Corporación Andina de Fomento	Carbon Emissions Trading

*Funds are divided by investment focus, defined as:

Clean Energy: Funds that seek investment in clean energy, including wind, solar, biofuels, biomass & waste, geothermal and energy efficiency.

Environment/Cleantech: Represents funds with a more diversified theme that in addition to clean energy, actively invest in areas such as water, recycling, pollution mitigation, etc.

Climate Change: Represents funds that invest in companies or programs that are involved in developing solutions to address the challenge of climate change.

Energy & Infrastructure: Funds that primarily invest in power generating assets, but which has considerable focus on renewable power assets.

Carbon Emissions Trading: Funds that invest in CDM/JI projects and emission reduction instruments such as CERs, ERUs, EUAs and AAUs.

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ACKNOWLEDGEMENTS

This report was commissioned by the Multilateral Investment Fund (MIF), part of the Inter-American Development Bank Group (IDB), under its Climate Change Initiative and was produced in collaboration with Bloomberg New Energy Finance.

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REPORT & WEB TOOL DESIGN

Two Twelve, New York

WEB TOOL DEVELOPMENT

Rubenstein Technology Group

SPECIAL THANKS

MULTILATERAL INVESTMENT FUND

Filippo Berardi
Emil Caillaux
Alfredo Giró
Fernando Jimenez-Ontiveros
Carrie McKellogg
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Sonia Puente
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We appreciate the input and feedback of the following external collaborators:

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