

CLIMATESCOPE 2012

Small and Medium Initiatives with a Large Impact

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MICROFINANCE FOR GREEN INITIATIVES

Argentina

Increasingly, microfinance institutions (MFIs) are playing a leading role in expanding energy access, via clean sources, to remote parts of the developing world. The *Climatescope* green microfinance survey found that of 448 microfinance institutions operating in Latin America, 71 offer micro, small, and medium enterprises and low-income households financing for the purchase of modular clean energy generation units. In Argentina, for example, three organizations currently offer green micro loans for small-scale clean energy systems or energy efficiency efforts.

Buenos Aires-based Emprenda offers credit lines to support residential solar system installations. The organization has been active in Argentina since 1997 and began offering solar-specific financing in 2004. Dubbed Emprenda Energía Solar, the program extends loans to families in rural areas allowing them to purchase and install solar equipment to complement their electricity consumption needs. To date, it has lent \$500,000, and

1,000 rural households in northern Argentina have benefited. Though green micro credits only represent 5% of Emprenda's total portfolio, the success of the initiative has led the group to expand it beyond Argentina to elsewhere in Latin America and the Caribbean.

In Peru, Emprenda advised local micro finance institution Vivencia in its launch of a similar credit line that today allows rural residents there to go solar. Specifically, the new Vivencia program has assisted citizens in remote parts of northwest Peru near Piura. The Inter-American Development Bank (IDB), in partnership with Global Village Energy Partnership (GVEP) International, Germany's technical cooperation agency (GTZ), and the government of Korea, operates the annual contest IDEAS, which recognizes innovative projects aimed at fostering clean energy and energy efficiency. In 2009, the Emprenda-Vivencia partnership was one of the IDEAS contest winners.

SOLAR PHOTOVOLTAIC ELECTRICITY – FOR FREE!

Bahamas

The Bahamas has 575MW of installed power capacity, all oil- and diesel-generated, and is one of three Caribbean countries to rely entirely on fossil fuels to meet its energy needs¹. Thus energy security is a major concern, and the Caribbean island nation is striving to diversify its generation mix. Known as a sunny vacation destination, the Bahamas holds great potential for distributed photovoltaics given the high local electricity prices, excellent insolation and ever declining equipment costs. To better understand the potential for solar in the Bahamian islands, the Ministry of Environment has launched a pilot program to distribute 100 solar water heaters and 33 residential

photovoltaic systems of 2kW to electricity end-users at no cost. Consumers receiving solar panels will be able to connect to the Bahamian national power grid, and the government will monitor system performance to assess the viability and potential for distributed generation. This pilot initiative is funded by a grant from the Inter-American Development Bank (IDB) and the Global Environmental Facility (GEF), which aims to promote the use of renewables in the Bahamas and reduce the country's dependence on fossil fuels.

1. The other two countries are: Barbados and Trinidad and Tobago.

SUSTAINABLE ENERGY INVESTMENT PROGRAM (ENERGY SMART FUND)

Barbados

Barbados is one of five² countries in Latin America and the Caribbean region entirely dependent on non-renewables to meet its electricity needs. The island has 239MW of installed power capacity, all of which is fossil-based. As a consequence, Barbadians pay \$0.26/kWh on average for retail electricity, the second highest rate in the entire region.

In 2011 the Barbados Energy Division within the Prime Minister's office launched the Energy Smart Fund. This pioneer project encourages household consumers and small and medium enterprises to become more energy efficient and to develop distributed scale renewable electricity systems. It includes initiatives to distribute compact fluorescent lamps (CFLs), and to finance small clean energy and energy efficient projects.

The Inter-American Development Bank (IDB) provided a \$10m loan to launch the program. Two key aspects are the loans and technical assistance facilities it offers to small and medium sized businesses. Loans of up to \$750,000 are available to businesses in all sectors to implement low-carbon initiatives using renewables or energy efficient techniques. Additionally, the fund also provides small grants to conduct feasibility studies on the potential for different clean energy and energy efficiency alternatives for specific end uses. This initial push is poised to help Barbadian businesses become more competitive, while reducing their carbon footprints.

INTRODUCING SOLAR ENERGY IN BELIZE – UNIVERSITY OF BELIZE PILOT PLANT

Belize

Of 26 Latin American and Caribbean countries, Belize has the highest share of installed renewable energy capacity, with 80MW of a total 136MW on line locally. Still, there is plenty of room for capacity additions since the Central American country imports 160GWh per year from neighboring Mexico to meet around 30% of its electricity needs. Non-renewable capacity is largely diesel based. Coupled with the power imports, this has resulted in Belizean consumers paying the third highest electricity rates in the Latin American and Caribbean region at \$0.23/kWh, on average.

Partly in response, the University of Belize is currently developing a solar energy pilot plant to study how this technology can help reduce the country's dependence

on fossil fuels and whether solar is a more economical source of power generation. In February 2011, the Japanese International Cooperation Agency (JICA) committed \$11.2m to develop the project, which will be located on the university campus and be connected to the national grid. Power produced will be sold to public utility Belize Electricity Limited (BEL). An intriguing aspect of the project is that revenue from the sale of solar power will be passed along to the University of Belize in the form of grants for research in clean energy. The project is expected to be commissioned in August 2012 and stands to be Belize's first grid-connected solar plant.

2. The other four countries are: Bahamas, Paraguay, Suriname and Trinidad and Tobago.

MICROFINANCE AND CLEAN ENERGY DEPLOYMENT IN BOLIVIA

Bolivia

Increasingly, micro, small, and medium enterprises (MSMEs) are playing an important role in clean energy and energy efficiency deployment in the developing world. In Bolivia for example, microfinance institutions (MFIs) are providing MSMEs credit to incorporate clean technologies into their production methods for energy efficiency gains and savings. The *Climatescope's* green microfinance survey found that six out of 30 microfinance institutions active in Bolivia offer credit to MSMEs for developing low-carbon initiatives. In 2011, Banco FIE created a special green credit line, Crédito Verde, aimed at helping

low-income borrowers finance energy efficiency improvements for small distributed clean energy generation or initiatives to help reduce the borrower's environmental impact. Before beginning disbursement in the second half of 2011 the bank experimented with the credit scheme by running a four-month long pilot project. By March 2012, the program provided a total of \$550,000 in credit to 137 borrowers. Banco FIE's Crédito Verde program is poised to become an important tool to help foster clean energy deployment and energy efficiency initiatives to small and medium size businesses in Bolivia.

BRINGING ELECTRICITY FOR ALL TO ISOLATED COMMUNITIES IN BRAZIL

Brazil

The government-backed Luz Para Todos program (Light for All) is close to making universal access to electricity a reality in Brazil. Since its launch in 2003, the program has brought electricity to some 14m Brazilians helping the country achieve its current 97% electrification rate. The program does not have a particular focus on renewable energy, but since it aims to bring power to remote villages with electrification rates below 80%, small-scale photovoltaic systems have played a big role thus far.

Apart from solar, the program has installed micro-hydro and micro-wind generation facilities throughout remote towns and villages in Brazil. Having surpassed its initial goal of expanding access to 10 million Brazilians, Luz Para Todos is now focused on reaching the most isolated areas in the country, including the Amazon region in the north where transmission lines do not penetrate the dense forest. In such an environment, tailor-made small distributed renewable projects are the preferred solution for both environmental and economic reasons.

An example of one such project is the 50kW Cachoeira de Aruã micro-hydro facility in the Amazonian state of Pará which to date has benefitted 50 low-income households. The program has also helped install a biomass plant in Marajó Island, also in Pará. It has provided electrification to the indigenous São Francisco de Aiucá community located in a remote village in the Amazon via a small distributed photovoltaic system that brings light to 23 households. It installed a hybrid wind/solar/diesel plant in the the Ilha de Lençóis community in the north of Brazil, bringing electricity to 89 households. While these may seem small initiatives compared to Brazil's 116GW installed power capacity, their social, financial, and environmental impact cannot be underestimated in the Amazon, an area of critical importance.

FUNDACIÓN CHILE – FOSTERING CLEAN ENERGY ENTREPRENEURSHIP

Chile

Since 1973, Fundación Chile has been on the forefront of supporting local entrepreneurship. Today, it plays an important role as one of Latin America's only clean energy-focused incubators. Over more than three decades, this non-profit private organization has helped launch more than 85 companies through its Entrepreneurship Platform. Currently, Fundación Chile focuses on four core industry segments, two of which are related to renewables: Sustainability and Biotechnology & Food.

The Chilean organization supports clean energy start-up companies including Bioenercel, GTN Latin America and Solar Chile. These three organizations, still in the “incubation” stage, represent the promise of growth for Chile's low-carbon economy. Bioenercel is developing second-generation biofuels technology. GTN Latin America is a geothermal project developer that has attracted private German and Icelandic investors. Solar Chile is seeking to build a 34MW photovoltaic project near Pozo Almonte, in the Region of Tarapacá at the heart of the Atacama desert. By helping to launch companies such as these, Fundación Chile stands to help Chile reach its goal of 10% installed clean energy by 2024.

Fundación Chile, as the recipient of a Multilateral Investment Fund (MIF) grant, has also been at the forefront of efforts to improve energy efficiency in small and medium-sized businesses in the country, the development of energy service companies (ESCOs), and the creation of an ESCO association, which is now being replicated in Jamaica.



GTN Latin America, Chile.
Credit: Fundación Chile

BANCOLOMBIA – LOCAL SUPPORT TO LOCAL CLEAN ENERGY PROJECTS IN COLOMBIA

Colombia

While multinational lenders are taking a greater role in financing clean energy development in Latin America, capital from private local providers can be challenging to secure. Bancolombia is one exception and has launched a new credit line for renewable energy and energy efficiency projects. The bank's Credit for Sustainable Environment³ program aims to make \$100m available to projects in Colombia, offering below-market interest rates and advice to borrowers on tax incentives for clean energy. Energy efficiency initiatives, power consumption reduction schemes, and clean energy generation projects can all qualify.

Companies can also receive financing for efforts to improve production processes through recycling, reduction of waste or other steps. The credit line is backed by a \$50m loan guarantee from the International Finance Corporation (IFC) and the Inter-American Development Bank (IDB). Bancolombia's credit line program was inaugurated in 2011 with a five year expiration date, but its impact should have a long-term effect on Colombia's clean energy sector, especially for small and medium enterprises.

3. Crédito para la Sostenibilidad Ambiental

ICE FIRES UP SMALL-SCALE SOLAR

Costa Rica

The market for residential solar systems has begun to expand in Costa Rica thanks to a nationwide net metering and self-generation program. Launched in October 2010 by vertically integrated public utility Instituto Costarricense de Electricidad (ICE), Plan Piloto Generación Distribuida para Autoconsumo allows consumers to generate their own power then sell excess capacity back to the utility.

As of February 2012, the pilot project had attracted 38 consumers who are now considered self-generating agents. Most have small solar systems. The program has two main objectives, according to ICE distributed generation project coordinator Alexandra Arias: First, to encourage consumers to generate power cleanly, and second, to gather data on how such small-scale projects impact the national grid so that ICE can develop a long-term plan for integrating distributed generation on a wider basis. The pilot project is due to expire in October 2012, but consumers who are participating have a guaranteed fixed contract with the utility for 15 years. The utility is in the process of expanding the duration of the program due to its response to date.



Installation of rooftop solar panels, Plan Piloto Generación Distribuida, Costa Rica.
Credit: Alexandra Arias, Instituto Costarricense de Electricidad

SMALL COUNTRY, BIG CLEAN ENERGY POLICY AMBITIONS

Dominican Republic

The Dominican Republic has one of the most ambitious clean energy policy frameworks among the nations assessed for the *Climatescope*. This includes energy market incentives, equity finance availability and tax breaks. The country's two most advanced policies are a 25% renewable energy mandate by 2020 and a clean energy net metering program. The first relates to utility-scale low-carbon projects, while the second focuses on end-users' contributions to the grid. The two main renewables targets: 10% of electricity supply by 2015 and 25% by 2020. The Dominican Republic is one of six *Climates-*

cope nations to have a net metering law in place⁴ that allows consumers who own clean energy systems to sell their excess power back into the grid. The program came into force in July 2011. Residential end users with systems up to 25kW in size can participate. Industrial consumers with up to 1MW systems can also take part. As of April 2012, 35 residential and industrial customers were selling their excess power back to the grid. The Dominican Republic's policy framework is a testament to the country's ambitions, but time will tell whether its objectives will be met.

4. The other five countries are: Barbados, Costa Rica, Jamaica, Mexico and Uruguay.

THE GALAPAGOS: GOING GREEN

Ecuador

The Archipelago of Galapagos lies 972km west of Ecuador's coast in the Pacific. Recognized as a World Heritage Site by the United Nations Educational, Scientific and Cultural Organization in 1978, the islands have preserved 95% of their original species diversity since being discovered by man.⁵ In 2001, an oil spill threatened the islands' fragile ecosystem. In the wake of that event, the Ecuador Ministry of Electricity and Renewable Energy partnered with local public utility Elecgalapagos to launch the Energías Renovables para Galápagos (ERGAL) project to replace fossil fuels used for power generation with cleaner sources. From 2006 to 2009, under the coordination of the United Nations Development Program, the project attracted \$30m in grants from various institutions including the Global Environmental Facility (GEF), the government of Ecuador, and the International Climate Initiative.

On October 2007, the project achieved a major milestone with the commissioning of a 2.4MW wind farm. Located on the island of San Cristobal, the facility is also registered as a Clean Development Mechanism (CDM) project. In 2011, the plant generated 3.34GWh and met a third of San Cristobal's electricity needs.⁶ To date, both wind and solar

generation capacity have been deployed in the island. Feasibility studies for electricity generation through the burning of biofuels have suggested that, too, may be a possibility. Additionally, the islands of Isabela and Floreana have solar photovoltaic plants of 700 peak kW and 20.6 peak kW, respectively, which operate with diesel back-up facilities and complement the islands' grids.



Satellite view, Galapagos Islands
Credit: NASA's Earth Observatory.

DELIVERING GREEN MICRO CREDIT TO THOSE OFF THE GRID

El Salvador

Microfinance institutions play a key role in advancing clean energy throughout Latin America and the Caribbean but are particularly important in El Salvador. According to a 2010 study,⁷ the country has one of the most developed microfinance sectors in Latin America. Banco ProCredit lends to small and medium enterprises and makes credit available for energy efficiency initiatives such as purchases of new machinery or installations of new renewable energy systems. The organization is part of the ProCredit Group,

a network of banks serving small businesses in 21 countries around the world. Separately, San Salvador-based Integral SAC focuses on making green micro-credit available to individual borrowers in El Salvador, Guatemala and Mexico. Green microloans represent 2% of the institution's credit portfolio and around \$250,000 has been disbursed to date, benefiting 500 clients. Integral offers annual rates at 10%, with a repayment period of 24 months.

5. Charles Darwin Foundation and World Wildlife Fund. 2002. A biodiversity vision for the Galapagos Islands. Ed. R. Bensted-Smith. CDF, Puerto Ayora, Galapagos

6. Operational Data, Eolica San Cristobal SA (EOLICSA)

7. Pedroza, Paola. Microfinanzas en América Latina y el Caribe: El sector en cifras, October 2010.

SMALL SOLAR CAPACITY BRINGING ACCESS TO ELECTRICITY IN GUATEMALA

Guatemala

From 2006 to 2011, Guatemala received a cumulative \$401m in investments into its clean energy projects and companies. In spite of these commitments, access to electricity continues to be a challenge in this Central American nation. Only 80% of the country's population are connected to the grid and has access to regular electricity services. This represents the fifth lowest electrification rate of 26 Latin American and Caribbean countries. Solar energy has proven to be an economically and environmentally feasible alternative to several countries with a large rural population that remains disconnected from the national grid.

Solar energy is being used in rural electrification programs like EURO SOLAR, a European Commission-backed program aimed at promoting greater energy access via renewable sources in Latin America's eight poorest countries, including Guatemala. In Guatemala alone EURO SOLAR helped electrify 117 rural communities. Besides this flagship program, other organizations are playing roles in expanding access to energy with renewable sources to the rural poor.

The Guatemalan start-up Quetsol was established in 2009 by two young local entrepreneurs to help bring clean energy solutions to the energy deprived rural poor. Quetsol provides small solar electricity generation kits at affordable prices, and so far, it has distributed and installed more than 1,000 solar systems, benefiting more than 4,500 low-income Guatemalans.

Even subsidized solar systems are still too costly for some low-income Guatemalans. To help overcome this gap, Quetsol has partnered with a few Guatemalan banks and microfinance institutions (MFI) such as Genésis Empresarial, which help facilitate financing for the purchase of its solar kits.

PARTNERING WITH NORWAY TO CUT CARBON EMISSIONS AND ELECTRIFY THE HINTERLANDS

Guyana

Located on the northern coast of South America, Guyana has made exceptional efforts to preserve its untouched forests thanks in part to a partnership with the government of Norway signed in 2009. The agreement created the Low-Carbon Development Strategy (LCDS), a comprehensive plan to limit carbon emissions by avoiding deforestation and preserving Guyana's forests, which cover over two thirds of its 215,000 km² of territory. Through the LCDS, Norway committed to pay \$5 per ton of avoided greenhouse gas emissions to the Guyana government.

Those funds are then directed to clean energy initiatives such as the Hinterland Electrification Program, which seeks to expand energy access in rural regions of the country mainly inhabited by Amerindian communities. Guyana currently has an 82% electrification rate, and most in the hinterlands lack grid access. The program provides photovoltaic panels to close this gap, meeting local needs with clean energy deployment. So far, \$7m has been committed.

CLEAN ENERGY POST-EARTHQUAKE RECOVERY THROUGH REMITTANCES

Haiti

Haiti's energy sector had been in a state of crisis for years prior to 2010's earthquake. In the wake of that devastating event, today only 12% of Haitians have access to electricity and service remains intermittent. Post-earthquake reconstruction has been slow overall and progress in the energy sector has been no exception. The non-profit organization Arc Finance and goods-based remittance company Food Express saw opportunity in rebuilding through clean energy deployment. The organizations partnered to create a program which facilitates the purchase of small scale clean energy products through remittances. The newly-

created initiative provides solar devices with prices from \$35–\$80, which can be purchased by Haitians in diaspora and sent to relatives living in the island. The small solar kits replace kerosene lamps, preventing future fuel costs and reducing health risks. The program's goal is to sell 5,000 low-cost sustainable energy products, bringing electricity and quality of life to Haitians. Similar initiatives are starting to spread through Haiti. In January 2012, President Michel Martelly announced plans to commit \$30m in small loans to finance solar photovoltaic kits.

TARGETING MORE THAN JUST LARGE-SCALE PROJECTS

Honduras

The Central American Bank for Economic Integration (BCIE)⁸ has recognized that a green economy consists of more than just investments in large-scale clean energy projects. Small and medium companies have key roles to play as well. Through its MIPYMES⁹ Verde initiative, BCIE finances such businesses that seek to develop projects to cut energy consumption, improve efficiency, or generate power from renewables. This recently launched credit line has also raised awareness in the region about the importance of clean energy investment through public outreach to entrepreneurs, financial institutions and project developers.

MIPYMES Verdes has already disbursed \$6.9m to renewable energy projects, according to Honduras project manager Lynda García. Among them are two small hydro plants with a total installed capacity of 6.4MW. The BCIE has received support from the German government, through KfW, and the Latin America Investment Facility (LAIF), from the European Union, to support its green credit line.

8. Banco Centroamericano de Integración Económica.

9. MIPYMES stand for micro, small and medium enterprises.

BRIDGING THE FINANCE GAP FOR SMALL BUSINESSES AND HOUSEHOLDS

Jamaica

Access to finance is an obstacle to clean energy deployment in a number of Latin American and Caribbean countries, which explains why local development banks have stepped in to close the gap. The Development Bank of Jamaica (DBJ), for instance, offers two unique credit lines for renewables and energy efficiency projects targeting small and medium companies. Jamaica has the highest retail electricity prices in the Latin America and Caribbean region. As a result, installing renewable power systems has the potential not just to reduce small businesses' carbon footprints but to cut their electricity costs and improve their competitiveness.

DBJ launched its first green credit line in 2010 through the DBJ PetroCaribe Energy Fund. It provided \$11.5m to finance initiatives of up to \$173,500 per company, focusing on the installation of renewable electricity gener-

ation sources and energy efficient practices. The Energy Fund credit line provided favorable interest rates and repayment periods of up to seven years. As of February 2012, DBJ had approved \$3.7m in loans for small and medium enterprises.

The success of this first green credit line prompted the bank to launch a second, this time with a focus on households. In March 2012, it began accepting loan applications from homeowners seeking to install photovoltaic systems, solar water heaters, or small wind turbines. The \$1.1m credit line will provide loans of up to \$23,000 apiece with an interest rate of 9.5%.

FUNDS USED TO DEPLOY CLEAN ENERGY AND PROMOTE INNOVATION

Mexico

In Mexico, government-sponsored funds are leading the way on advancing clean energy technologies and transitioning to a greener economy. In 2008, the country enacted its Energy Transition and Sustainable Use of Energy law, which created a special fund to support the deployment of clean energy and improve energy efficiency in the country. The fund started out with a budget of \$43m and by 2010, it already supported three nationwide initiatives. Two of them focused on energy efficiency, by facilitating the substitution of domestic appliances for more efficient ones, and the distribution of compact fluorescent lamps. The fund also supported the Servicios Integrales de Energía (SIE), Mexico's rural electrification program focused on bringing renewable electricity to the 100 least developed rural towns in the country.

Another initiative making a positive impact on Mexico's clean energy sector is the Sustainable Energy Fund. This partnership between Mexico's Secretariat of Energy (SENER) and the National Council of Science and Technology (CONACYT) aims to promote technology and scientific innovation in the country's renewable market. Funding comes from a 0.13% tariff on the annual value of all oil and natural gas extracted by Mexico's state-owned oil company Petróleos Mexicanos (PEMEX). Since 2009, CONACYT opens an annual call for innovative projects. Only Mexican academic and research institutions are eligible to participate. In 2011, 32 projects were chosen, with projects ranging from the development of solar photovoltaic cells to research on second generation biofuels.

TECNOSOL: SOLAR EQUIPMENT PIONEER RAISES ITS SIGHTS

Nicaragua

Across Latin America, solar photovoltaics have the potential to bring energy access to millions who are not connected to the grid. In Nicaragua, approximately a quarter of the population lives without power. Tecnosol is an innovative local venture that has been one of Nicaragua's leading providers of off-grid renewable energy equipment. The company, which also has branches in El Salvador and Panama, has received support from E+Co to expand. Tecnosol used the funds to commission a market study and provide short-term credit to its customers.

In 2005, the Multilateral Investment Fund (MIF) provided an \$180,000 grant and a \$520,000 loan to Tecnosol to promote deployment of solar to Nicaragua's most isolated communities. At the time, Tecnosol had already installed more than 1,400 such photovoltaic systems. This grant/loan followed a previous investment in the company by a MIF venture capital fund and demonstrated that a small start-up could grow to scale.



Electrification through solar panels in rural village, Tecnosol, Nicaragua.
Credit: Tecnosol

SWAPPING SUN FOR OIL THROUGH RURAL ELECTRIFICATION

Panama

More than one in seven Panamanians lacks access to electricity.¹⁰ Seeking to address this, the Panama government in 1998 created a special agency to lead local electrification efforts. The Oficina de Electrificación Rural (OER), or Office of Rural Electrification, coordinates the Plan de Electrificación Rural (PLANER) and has developed two main strategies: for communities close to the grid but without access, OER has sought to expand transmission lines; for more isolated areas, OER is providing and installing photovoltaic panels. The goal is to help rural Panamanians swap candles and oil lamps for clean electricity generation sources. In 2011, the electrification program installed 10 small-scale photovoltaic plants benefiting six rural communities in the province of Colón and four others in the indigenous region of Kuna Yala. Thanks to these projects, a total of 1,063 people gained access to electricity in 2011. Further deployment of low-carbon energy sources is expected to come as the OER works towards its target of 90% electrification in Panama.



Electrification through solar panels, Panama.
Credit: Tecnosol

10. As of 2009, according to the World Energy Outlook – 2010, International Energy Agency.

INDIGENOUS COMMUNITIES POWERED BY SOLAR

Paraguay

Paraguay is by far the largest electricity exporter in the Latin America and Caribbean region, sending approximately 80% of its 54,000GWh of production out of country each year. Despite this, 200,000 Paraguayans lack regular access to electricity. Most are located in indigenous communities in the sparsely inhabited Chaco region in the western Paraguay.

In 2011 Itaipu Binacional, which manages the Itaipu dam, financed a project to expand solar to rural areas. In November 2011, vertically integrated utility Administración Nacional de Electricidad (ANDE) conducted the first tender to procure equipment to power 10 indigenous communities in Boquerón province. Meeco América Latina, a subsidiary of Swiss company Meeco AG, will provide the equipment for a \$240,000 investment.



Electrification through solar panels, Paraguay.
Credit: Tecnosol

ABUNDANT GREEN MICRO FINANCE SEEKS TO ADDRESS LOW ELECTRIFICATION RATE

Peru

Peru has more green microfinance organizations than any other nation surveyed for the *Climatescope*, with 11 of its 62 microcredit institutions offering loans for energy efficiency improvements or clean energy deployment. Peru's electrification rate currently stands at 83%, well below the South America average of 89%, and these institutions look to improve that. Peru's green MFIs provide a diversified set of services, ranging from technical assistance to direct loans to finance clean energy products. Lima-based Consorcio de Organizaciones Privadas de Promoción al Desarrollo de la Pequeña y Microem-

presa (COPEME), for instance, has five branches across the country and has focused on helping small businesses improve their energy efficiency and ultimately their productivity and competitiveness. Popular SAFI's credit line Enersol provides clean energy loans to low-income rural households and small enterprises in isolated areas. Enersol is currently operating as a pilot project, and focuses on group loans for the purchase of solar LED lights. In 2011 alone, the credit line benefited 150 clients through green micro lending.

GREEN RURAL ELECTRIFICATION

Suriname

Suriname has one of the highest electrification rates among Latin American and Caribbean countries with 97% of its population connected to the grid. However, none of its 277MW of installed capacity is represented by renewables as the country relies solely on large hydro- and diesel-generated electricity. This may soon change as the government is developing a \$25.9m rural electrification initiative to unlock the country's renewable energy potential while bringing power to isolated communities. At the end of 2011, the program received support from the Multilateral Investment Fund (MIF) and the Global Environmental

Facility (GEF), which contributed \$1.7m and \$4.4m in grants, respectively. The GEF has pledged an additional \$20.8m through loans to fund the initiative. The primary project beneficiaries will be 10,000 residents in rural villages Suriname's interior. Most are Maroons (African descendants) and Indigenous (Amerindians) who stand to benefit from reliable and sustainable access to energy through renewable sources. The project aims to install almost 700kW of solar photovoltaic capacity and around 2.7MW of micro hydro plants.

GREEN FUND BACKS LOW-CARBON INITIATIVES

Trinidad & Tobago

Trinidad and Tobago is one of three countries assessed for the *Climatescope* that relies solely on fossil fuels for electricity generation.¹¹ Natural gas accounts for 99% of its 1.8GW installed power capacity, with the remaining 1% from oil and diesel-based facilities. This reliance on fossil fuels prompted the Ministry of Housing and Environment to create the Green Fund, a grant program to support non-governmental organizations seeking to develop low-carbon projects.

The fund has three main environmental focuses: remediation, reforestation and conservation. Funding comes from a special 0.1% sales tax on all Trinidad and Tobago

businesses. Revenues are then channelled to the Green Fund, which in turn provides grants to the selected initiatives. While the fund has not supported any clean energy project yet, it has helped other initiatives aimed at limiting carbon emissions. In 2011, it awarded \$1.75m in grants to two reforestation and forest preservation programs and one recycling initiative. Looking ahead, the Green Fund represents an opportunity for local organizations to balance greenhouse gas emissions and work towards a greener economy for Trinidad and Tobago.

11. The other two countries are Bahamas and Barbados.

SOUTH AMERICA'S FIRST NET METERING POLICY

Uruguay

State-owned utility Administración Nacional de Usinas y Trasmisiones Eléctricas (UTE) has been on the forefront of efforts to diversify Uruguay's energy matrix away from a current heavy reliance on large hydro generation. These have resulted in reverse auctions for power from wind and biomass projects in 2009 and 2010.

Uruguay was also the first country in South America to adopt a distributed generation policy, launching in 2010 a net metering program for renewable microgeneration. Under the initiative, customers that own power generation facilities for self-consumption may sell excess generation

into the national grid. On their bills at the end of each month they receive a credit, which applies toward electricity consumed in that period. The first project under the microgeneration program was installed in the Maldonado department, in the south of Uruguay. The customer installed nine photovoltaic rooftop panels, amounting to a total capacity of 1.58kW. More facilities are expected soon, which will increase customer participation in Uruguay's move toward greater clean energy deployment.

MICROCREDITS FOR SOLAR ENERGY IN THE TOURISM INDUSTRY

Venezuela

Thanks to an abundance of oil, renewables account for only 0.1% of Venezuela's installed power capacity. Still, efforts are under way to change that. Two local microfinance organizations offer clean energy loans to small and medium enterprises. One of them, Fundación Programa Andes Tropicales (PAT) is notable for its support of sustainable tourism initiatives.

Created in 1997, PAT is also present in Argentina and Bolivia. In Venezuela, the group focuses on encouraging the use of green technologies by firms that support community-based tourism in the Andean and Savannah regions. In addition to technical consultancy services, PAT provides microcredits to entrepreneurs to help them adopt environmentally friendly structures for their businesses. PAT has particularly promoted the adoption of solar water heaters at tourist facilities. The group offers special conditions for green borrowing with interest rates well below those of regular banks. So far, the organization has lent to 50 small entrepreneurs, at an average interest rate of 8% under a 24-month repayment period.



Solar water heating system for community-based tourism, Venezuela
Credit: Programa Andes Tropicales

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