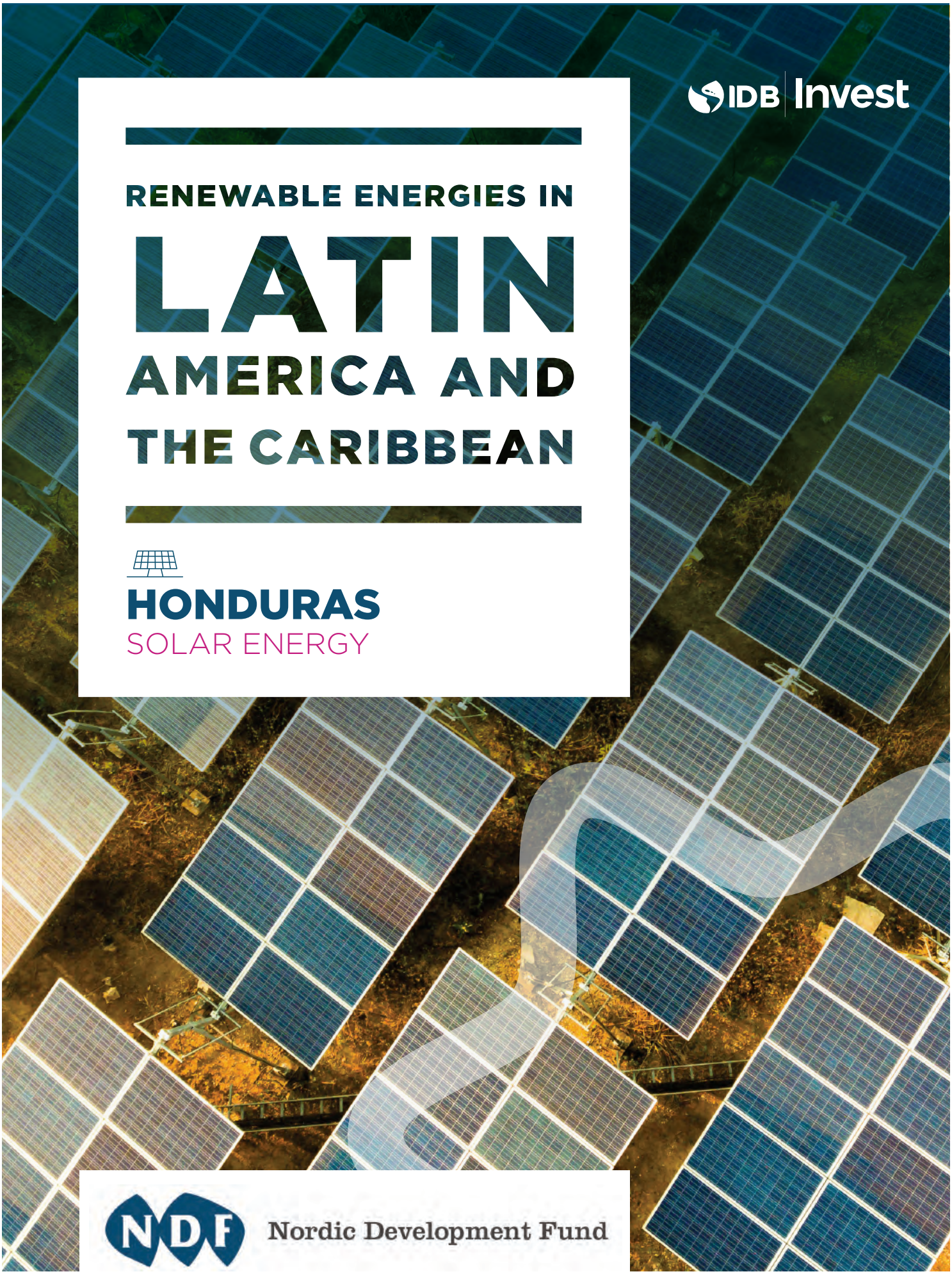
IDB Invest

RENEWABLE ENERGIES IN LATIN AMERICA AND THE CARIBBEAN

HONDURAS
SOLAR ENERGY



Nordic Development Fund

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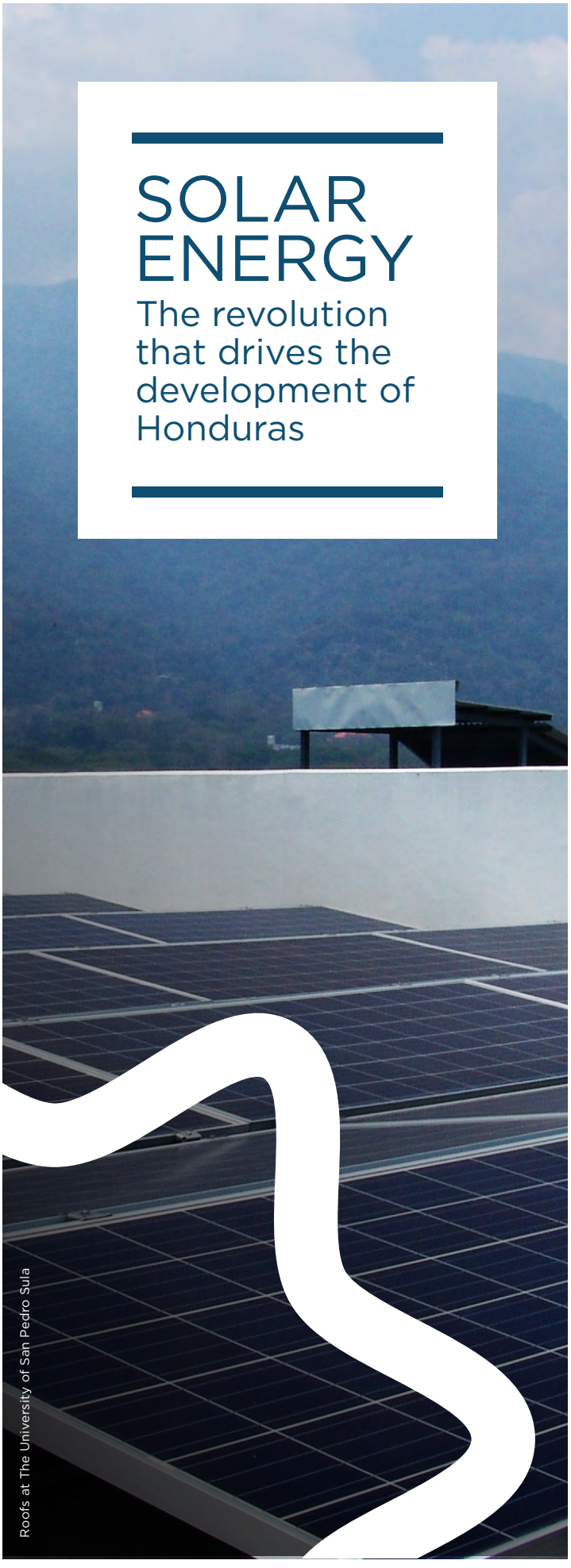
About IDB Invest:
IDB Invest, the private sector institution of the Inter-American Development Bank (IDB) Group, is a multilateral development bank committed to supporting Latin America and the Caribbean businesses. It finances sustainable enterprises and projects to achieve financial results that maximize economic, social and environmental development for the region. With a current portfolio of US$11.2 billion under management and 330 clients in 23 countries, IDB Invest works across sectors to provide innovative financial solutions and advisory services that meet the evolving demands of its clients. As of November 2017, IDB Invest is the trade name of the Inter-American Investment Corporation.

IDB Invest, June 2018.



Roofs at The University of San Pedro Sula

SOLAR ENERGY

The revolution that drives the development of Honduras

IDB Invest, the private sector institution of the Inter-American Development Bank (IDB) Group, offered George Gatlin a proposal in 2012 that radically changed his plastic recycling company, Inversiones Materiales (Invema), located in San Pedro Sula in northern Honduras.

IDB Invest was looking for companies that wanted to save money by generating renewable energy and provided specific studies on solar energy through non-reimbursable funds administered by the IDB Group and financed by various donors, including the Nordic Development Fund (NDF).

The value proposition was that companies could save up to 20 percent of their electricity bills by installing solar panels on their roofs. The proposal included a 25-year guarantee for the panels and investment payback in six years. According to the study, the savings would allow Gatlin to repay the loan and expand his business.

At that time, Invema was collecting 2,000 tons of bottles that it later crushed, washed and exported to the United States. It was a prosperous business that Gatlin had founded with his father in 1994 in a 10 cubic meter galley with an old truck and three assistants. At the time, the idea of making money by collecting garbage was unthinkable in Honduras.

"We managed to save up to 30 percent of electricity, almost $ 20,000 monthly savings, compared to the $ 90,000 we spent monthly"

At the same time that IDB Invest made its proposal, Gatlin was thinking about converting the plastic into resin and reproducing bottles or sheets for wrapping foods and thus reducing the carbon footprint, but he didn't have money to import the machinery. IDB Invest offered him a loan to expand his business on the condition that he install solar panels. He remembers thinking, "I know the recycling business well, but how do I know that I'll generate so much savings with solar energy?"

Thus, in 2015 he accepted the loan and installed the first 3,640 panels that generated 1,300 megawatt hours (MWh) of electricity per year, equal to the electricity consumed by 500 homes. "After a year, we saved 20 percent, we managed to save up to 30 percent of electricity, nearly 20,000 dollars a month in savings, compared to the 90,000 we used to spend each month," he stated.

With the first year's savings, Gatlin decided to cover the roof of his company with panels and today it has 5,640 panels generating nearly 2,000 MWh of electricity per year, equal to the consumption of 770 homes.

And as if this weren't enough, after a year and a half, Coca Cola certified Invema as the first food-grade plastics recycling plant in Central America. This means that the bottles the giant soft drink manufacturer will use starting in July will be made of plastic collected on the streets of Honduras and recycled by Invema.

The company now has 385 employees and 10,000 collectors. "It is a source of national pride because it is a solution to poverty and helps preserve the environment," he commented. "Thanks to the solar panels, IDB Invest's doors opened up and allowed us to make the investments we were dreamed," said Gatlin.

According to Invema's project chief, Luis Cohello, the plant recycles one million bottles per day or 80 percent of national collection. It later compacts and crushes them according to the grade of the product. According to the expert, this process requires consumes a lot of energy.

Solar energy generation at the plant begins at six in the morning with the first rays of the sun and ends at six in the evening, when the sun goes down. During the peak hours between noon and three in the afternoon, 1,600 kilowatt hours are produced, according to the company's project chief.

"The light that hits the surface of the panels generates electricity that is transformed from direct current to alternating current through devices called inverters," explained Cohello.

The inverters and panels are monitored 24/7 in order to know in real time how much energy is generated and how much radiation and CO2 are being emitted into the environment. "To produce one ton of virgin resin, about 23 kilograms of CO2, are released into the environment while if the same ton comes from recycled material, between 0.5 and 0.75 kilograms of CO2 are released, thus reducing the carbon footprint significantly," he emphasized.

Roofs at The University of San Pedro Sula

EDUCATIONAL EXPERIENCE

The campus of the University of San Pedro Sula (USAP) is located a few minutes away from the Invema plant. This university has become the pioneer among Honduran universities in the use of solar energy.

"The roof of six campus buildings are covered by 1,270 panels that generate the30 percent of the "consumption" of the university.

Roofs at The University of San Pedro Sula

Currently, six campus buildings are covered by 1,270 panels that send energy to 20 inverters to generate 406 MWh per year, 30 percent of the university's consumption, according to the head of maintenance, Roy Coello.

The project has intelligent systems that direct electricity to existing demand. In summer, the university manages to save up to 6,000 dollars a month on its electricity bill, revealed Coello.

Beyond the energy savings and environmental conservation, this project has significant academic value, according to USAP's Vice Chancellor, Víctor Medina. It is a learning by doing endeavor: a combination of academia and research for the university's more than 15,000 students, he stated.

The USAP included its students in the process of installing and operating the project with partial support from IDB Invest. "The students themselves check the monitors, measure the level of electricity consumption, and record any savings," stressed Medina.

University of San Pedro Sula´s students

The academic admits that at first there were a lot of fears about this type of investment, but with the results "we can say that the project works and that it is feasible to obtain a strong contribution in electricity saved. It allows us to generate energy and use what nature provides in an orderly way."

The Vice Chancellor believes that solar energy in Honduras is a great opportunity and that installation costs will fall as more projects are developed.

"Today, it's institutions and companies, but in future we can have it in our homes as well and thus do our bit for the environment," he emphasized.

SOLAR REVOLUTION

The history of Invema and USAP are just two examples illustrating the leap Honduras is taking by investing in solar generation projects, making it the second most important country in Latin America after Chile.

Roof at Invema

Until 2012, nobody was talking about solar energy in Honduras yet. But in late 2016, the country led the Central American photovoltaic market with installed capacity of 433 megawatts.

Solar energy currently provides 10 percent of the electrical matrix and in the last five years, along with other renewable sources, has helped to reduce thermal generation from 70 percent to 45 percent, according to reports from the National Electrical Energy Company (ENEE).

“Thanks to all the hydroelectric, solar, wind, and biomass energy being generated, we have achieved a contribution of 55 percent in renewable energy for our electrical matrix,” underscored the Minister of Natural Resources and the Environment, Elvis Rodas.

Honduras hopes to achieve 80 percent renewable energy in its electrical matrix by 2038 so the country is betting heavily on solar projects, according to the official.

The IDB Energy Specialist, Carlos Jácome, who has been involved in these reforms since 2012, feels that Honduras has undergone a transformation in photovoltaic energy generation.

“We are seeing a revolution in the electricity sector, not just in Honduras, but at the global level, because the storage of energy is changing the concept,” stressed Jácome.

According to his estimates, in time every home will have its own solar generation. In fact, he says, new buildings and residential areas will be designed and built for the installation of this type of technology.
The first steps in this revolution began with the feasibility studies done by IDB Invest and later with loans to many businesses that are now providing for their own consumption, according to the expert. In this way they reduce the drain on energy provided by government, so it has more resources available for expanding its service.

“Bank support included studies and soft financing. Later, these savings made it possible to improve the productivity of these companies because they can use what they no longer pay in energy to expand their businesses,” commented Jácome.

The expert estimates that the cost to install solar panels fell by 60 percent over the last three years and that the industry will put less expensive solar power storage batteries on the market, leading to a massive expansion of panels in the commercial and residential sectors.

SHARED RISK

The reforms for solar projects began in 2013 with the approval of a special law with incentives for investment in this area.

The aim was to strengthen the clean energy matrix and thus counteract the daily increase in the oil bill for thermal generation, according to executive reports from the ENEE.

The support of the IDB was decisive at that point based on the technical advice provided to the state energy company so it could reduce its losses and encourage investments in the private market, according to the official reports.

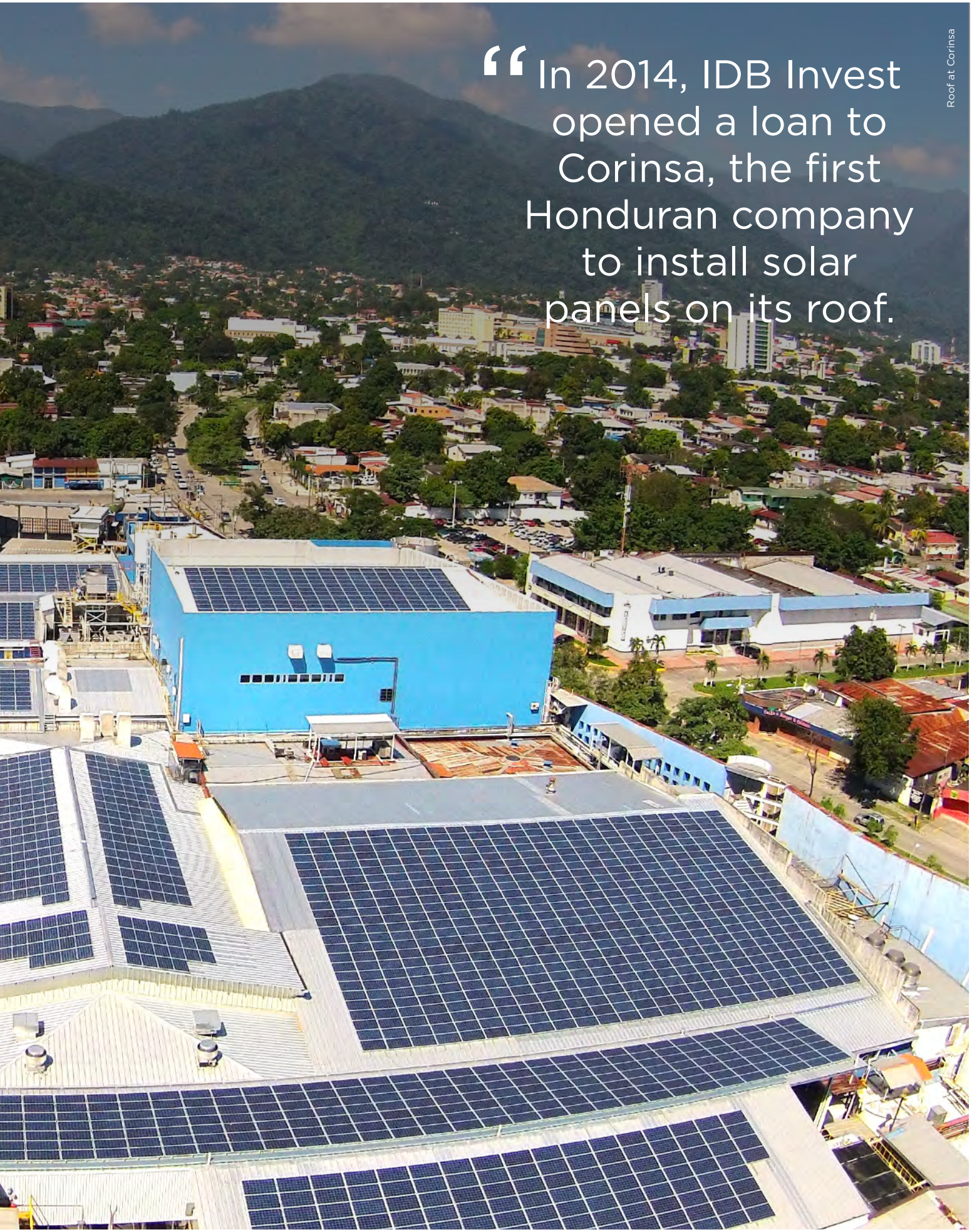
In that context, the first investments in photovoltaic development in Honduras involved shared risk for IDB Invest and its clients, as explained by Hilen Meirovich, Head of Climate Change of the IDB Invest Advisory Services team.

However, what made the difference, according to Meirovich, is that the Bank has the technical capabilities to evaluate investments and support its clients. Thus, in 2014, IDB Invest, on behalf of the IDB Group, offered a loan to the first Honduran company to install panels on its roof. The company selected was the Corporación Industrial del Norte, SA (Corinsa), owner of Embotelladora de Sula (Emsula), the first bottling company to install a solar plant in the country.

The photovoltaic project now has an installed capacity of three megawatts and generates 20 percent of the electricity it consumes. Corinsa, in addition to saving on its electricity bill, won various environmental awards and put San Pedro Sula on the world map with the largest industrial photovoltaic plant on roofs in Latin America.

“This not only resulted in significant savings and good returns on investment, but it also helped the country to better manage fluctuations in the cost of energy and to reduce our carbon footprint,” asserted Roberto Larach, General Manager of Corinsa, during the inauguration of the solar plant, as published in the daily newspaper, La Prensa.

This type of project is installed in less than six months, giving it an economic advantage over other options, such as wind, biomass, and hydroelectric projects that may take up to five years and that also make up the renewable matrix in Honduras.



Roof at Corinsa

FORMULA FOR SUCCESS

Every time that Don Lorenzo Ávila arrives at the Invema plant in his old truck filled with plastic and scrap metal, he confirms the results of solar projects in Honduras. It's a simple equation: if Invema hadn't obtained the loan from IDB Invest to install the solar panels, it would not have been able to expand the business and would probably not buy scrap metal or plastic from Don Lorenzo.

Aged 76 and the father of three sons, Don Lorenzo arrives at the plant twice a week. "I've been making a living from recycling for more than 20 years, although I sometimes work at other jobs,"

> “Entrepreneurial companies, supported by a bank with the capacity to evaluate and finance innovation, willing to take risks, as well as a public sector prepared to create favorable conditions for new markets.

acknowledged the southern Honduras native with skin weathered by the sun.

The influence of solar projects marks a before and after in the history of the country’s electricity sector, emphasized Elsia Paz, President of the Honduran Renewable Energy Association (EHER), one of the entities that emerged in the context of these reforms.

On one hand, they contributed to reversing the energy matrix in favor of renewable energy and, on the other, they developed national capacities for the installation and administration of projects of this kind.

“Before, if a Canadian, Spaniard or Costa Rican didn’t show up to supervise the work the project didn’t move forward. Now the Hondurans themselves have been strengthening all these positions. There is a friendly environment for investment,” she acknowledged.

Over the course of these years, we can also see that solar projects in Honduras followed the same formula for success: entrepreneurial companies, supported by a bank with the ability to evaluate and finance innovation and willing to take risks, in addition to a public sector prepared to create favorable conditions for new markets. “What has happened in Honduras demonstrates that IDB Invest is the strategic partner for innovative markets. Experiences of this kind should inspire and be replicated in the region,” emphasized Meirovich.

Let’s continue the conversation

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