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THE SMALL COUNTRY OF NICARAGUA HAS GOALS FOR ITS ENERGY PORTFOLIO THAT PUT TO SHAME EFFORTS BY MOST DEVELOPING NATIONS.

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In fact, Nicaragua's goal for renewable energy is one of the most ambitious in the world, which is saying something for the second poorest country in Latin America. Their intention is to produce 94% of their electricity from renewables by 2017 and reduce reliance on foreign oil from 80% to 6% within a decade, a push that has created a surge of interest in investments in the country.

Nicaragua's Mixed Energy History

It wasn't so long ago that Nicaragua was in the middle of an energy crisis. As recent as 2006, residents were subjected to daily power rationing blackouts of 6 to 10 hours each. Much of the fault was laid at the feet of derelict energy plants that were poorly maintained and an incomplete infrastructure that left many in rural regions in the dark completely. No doubt the lack of grid reliability had a massive impact on the country's economy, trapping Nicaraguans in their poverty. Though Nicaragua is near the bottom of the pyramid in terms of wealth in the region, they have to bear the weight of the highest energy costs in Central America, even with government subsidies for 80% of Nicaraguan household electricity bills. Yet since 2007, when the Sandinista government regained power and the grid was expanded by 41% with the addition of 343 megawatts of generating capacity, the future has been much less dim. Today, there's even a slight energy surplus generated every year, which has freed the government to turn to their second phase of energy expansion by focusing on renewables. The good news is that Nicaragua has an abundance of renewable options, from geothermal to wind, solar to hydro, and biomass as well as waste-to-energy. This doubtless is one of the most convincing arguments in favor of renewables development in the country.

Financing Nicaragua's Renewable Ambitions

Other Countries with Strong Renewable Programs
Albania (100% hydro in 2008).
Angola (96.45% hydro in 2008)
Bhutan (99.86% hydro in 2008)
Burundi (100% hydro in 2008)
DR Congo (99.46% hydro in 2008)
Iceland (100% renewable, with 26.27% geothermal in 2009).
Lesotho (100% hydro in 2008)
Mozambique (99.87% hydro in 2008)
Nepal (99.67% hydro in 2008)
Norway (97.11% renewable, including 0.93% non hydro in 2009)
Paraguay (100.00% hydro in 2008), exporting 90% of generated electricity (54.91 TWh in 2008)
Tajikistan (98.25% hydro in 2008)
Zambia (99.69% hydro in 2008)

Nicaragua is not alone in its ambition to become energy self-reliant. It'll be joining an elite list of nations that have already pushed their energy portfolios close to 100%, including surprising candidates such as Albania, DR Congo, Mozambique, and Zambia.

Yet there are several factors that make Nicaragua uniquely attractive for renewable investments. Of course, creating a more stable energy system that's based on locally available renewables increases Nicaragua's appeal, as do the plethora of renewable options and a strong political will. As Paul Quist, Presidential advisor in Nicaragua, [recently commented](#), "Who is going to invest in a country without energy?" Strong tax incentives from the government also help. But perhaps what makes Nicaragua so exceptional compared to other developing countries with lofty cleantech goals is the Central American electricity grid, which connects multiple countries in the region. Some experts have estimated that Nicaragua has the natural resources to generate nine times more energy it consumes from renewables.

Combined with the Central American grid

This outstanding potential effectively expands the regional spot market beyond Nicaragua's borders by allowing for the excess energy to be exported to other nations. Nicaragua certainly needs the assistance of foreign investments, and not surprisingly, many of the renewables projects in the country have been supported by NGOs and other governments. The IDB National Sustainable Electrification & Renewable Energy Program, for instance, has raised \$213 million from organizations such as the World Bank, the International Finance Corporation, and the Inter-American Development Bank (as well as other donors) to support the Nicaraguan government's work (through their national Transmission Company ENATREL and the Ministry of Energy) to alleviate poverty through the expansion of renewables. Similarly, the recent installation of 5,880 solar panels in Diriamba (department of Carazo), which will supply 1,100 rural homes with power, was funded by donations from Japan and money from the Nicaraguan government.



Foreign business entities are indeed investing in renewables in Nicaragua, thanks to tax breaks and incentives for foreign investors. The second phase of the massive San Jacinto-Tizate geothermal project, for instance, came online in early 2013 as a result of investments from US-based Ram Power Corp. A recent tariff increase approved by the government has helped to solidify the nation's relationship with this investment company. The additional revenue for the company will help to recover costs of expansion. Similarly, the Spanish firm, Biomasa Investment Nicaragua, SA (BINICSA) has put US\$150 million into a biomass project that will turn municipal waste into electricity in 12 municipalities. The Nicaraguan government also sweetens the pot for foreign investors by undertaking projects such as expanding infrastructure to support growing energy production. And the government continues to call for expressions of interest, with the most recent coming in early May 2013 for renewable energy projects in isolated Caribbean communities.

In all, foreign investments in renewables in 2011 were valued at \$217 million, up by 37% the previous year, according to ProNicaragua, the government's investment promotion agency. For their actions, several agencies have recognized Nicaragua as a good place for investment. According to Bloomberg's [New Energy Finance Climatescope report](#), Nicaragua ranks second in Latin America (behind Brazil) for investments in renewables, and first as supporter of green micro-financing in Central America.

Mega Projects Key to Nicaragua's Rapid Rise in Renewable Supremacy

There have been more than 25 renewable energy projects developed in Nicaragua over the past nine years. The following is just a sample of some of the more impressive ones.

- **Tumarín Hydroelectricity Project** • Energy type: Hydroelectricity • Energy capacity: 253 MW (potential to provide up to 50% of the nation's electricity) • Cost: US\$1.1 billion • Projected completion: 2016
- **Amayo I and II Wind Projects** • Energy capacity: 63 MW • Projected completion: Already online
- **Diriamba Solar PV Project** • Energy capacity: 1.38 MW (enough for 1,100 rural homes) • Cost: US\$11.4 million • Projected completion: Already online
- **San Jacinto-Tizate Geothermal Project** • Energy capacity: 72 MW (17% of the nation's needs I 2013) • Projected completion: Already online • Nicaragua's geothermal potential: 1200 MW
- **Multiple Municipalities Biomass Project** • Energy capacity: 2-4 MW per municipality (currently there are 12 participating municipalities) • Cost: US\$150 million • Projected completion: TBD

Nicaragua's Tenuous Path to Energy Independence

Given the economic benefits (the Nicaraguan Institute of Energy anticipates a 15% drop in electricity prices in the next 5 years, thanks to renewables) and the fact that, as a tropical country with a traditional agriculture economy that makes Nicaragua so much more vulnerable to the impact of climate change, the urgency to switch to renewables is felt more keenly here than in other countries within the Americas. In fact, Nicaragua ranks near the top for risks of natural disasters (many climate-related) according to a [Maplecroft Global Risk Atlas](#). Already, 9% of the agricultural production of the country is being lost to climate impacts.



It's no wonder the political will to achieve this audacious goal is so strong, but can they do it? If recent achievements are any indication, there are plenty of reasons for optimism. The government has proudly stated that they're on track to import two million fewer barrels of oil from Venezuela in 2013, saving the country \$200 million. Cesar Zamora, speaking for renewables company, TierraAmerica, [recently commented](#) on Nicaragua's impressive renewables investments,

"When you don't have to spend US\$200 million to buy fossil fuel, you are able to invest that money in social projects which add dynamism to local economies and you don't have to spend money to mitigate environmental contamination."



Certainly the per-capita electricity consumption of the country goes a long way to allowing the nation to take such large steps toward zero-carbon electricity. That said, recent years have shown an uptick in demand for electricity from both residential and commercial users, which could derail the country's goals to reach 94% renewables by 2017. This trend is likely to continue, especially given the fact that the country is aiming to increase grid access by 1.7 million residents in the coming years. At the same time, however, the government is pushing for better efficiencies with a variety of energy-saving programs that should help to temper some of this increased demand.

However, there is still a measured conservatism from many foreign investors, especially in light of 2012's controversial re-election of President Daniel Ortega. Nicaragua is back on the US's watchlist and many foreign governments and NGOs have pulled financial support for projects within the nation's borders as a result. Yet the fact that this small nation that ranks as the lowest-income country in the Western hemisphere could go from leaning heavily on oil to being almost completely free of it amidst a significant worldwide economic crisis would be a substantial achievement if they can pull it off. V

ery few larger nations can claim the kind of rapid, widespread switch from dirty energy to clean energy that Nicaragua has experienced. Whether they can overcome the strain of paying off energy loans, rising electricity demands, and a somewhat unstable political atmosphere remains to be seen. But if they can continue to add 10% more renewables annually through attractive investment options for foreign entities while reducing their reliance on oil imports, their prospects seem very, very bright indeed.

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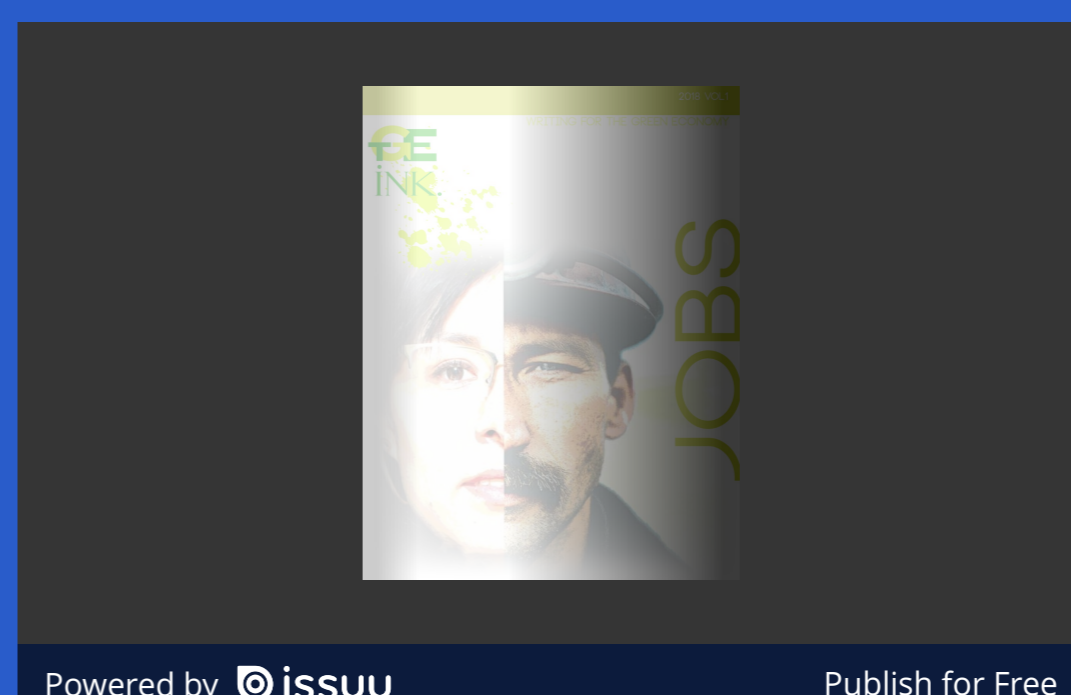
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