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Ambitious Green-Energy Overhaul Taking Root in Nicaragua

By Benjamin Witte-Lebhar

A spate of new power projects, surging foreign investment, and a welcome dose of positive press coverage are helping transform Nicaragua's go-getter energy goals from pipe dream to reality.

In 2009, Nicaraguan authorities unveiled an ambitious seven-year plan that called for expanding overall electricity supply by 70%. Furthermore, the Ministerio de Energía y Minas (MEM) boldly predicted that, by 2017, nearly all of the country's electricity (90%) would come from renewable-energy sources.

A casual observer might have been forgiven for finding the plan a bit far-fetched. When President Daniel Ortega returned to power in 2007, Nicaragua's installed electricity capacity was the weakest in Central America. People lucky enough to be on the grid suffered daily blackouts, while 45% of the population had no access to electricity at all. What little power the country did produce came mainly from generators run on imported oil, which is neither cheap nor clean. Complicating matters even more was the global financial crisis of 2008-2009, which dragged Nicaragua, already one of the hemisphere's poorest countries, into a recession.

Just a few short years later, however, the government's ambitious energy overhaul scheme is looking more and more like it may just pan out. "Just taking into account the new power plants that will begin operating in 2013, we're talking about a reduction in oil consumption of 1,000,754 barrels, which at the current price of US\$110 per barrel, amounts to about US\$193 million in savings," MEM head Emilio Rappaccioli explained in an interview last week with Nicaragua's Canal 4 television station.

Two-pronged approach

Step one was to satisfy the energy-strapped country's immediate power needs. To do so, Ortega—thanks in large part to a generous influx of Venezuelan oil money—oversaw construction of a series of conventional thermoelectric (fossil-fuel-powered) plants, including the Hugo Chávez and Che Guevara generators, operated by the government-controlled firm ALBA de Nicaragua, SA (ALBANISA). The company was set up to manage funds invested via the

Alianza Bolivariana para los Pueblos de Nuestra América (ALBA), a Venezuelan-led trade bloc in which Nicaragua is an active member.

The new plants have helped push the country's total installed capacity from roughly 750 megawatts at the start of Ortega's tenure to 1,100 MW now, for an overall supply increase of 60%. Salvador Mansel, president of Nicaragua's Empresa de Transmisión Eléctrica (ENATREL), said capacity is now about double the country's maximum demand, meaning power companies can carry out maintenance and repair operations on their various generators without risking the kinds of blackouts that were previously so commonplace. "Those blackouts were really affecting the economies of our country's families," Mansel said in a recent interview with Programa Estudio TN8.

In the meantime, the government carefully encouraged investment in renewable-energy ventures as well. That foresight is now starting to pay significant dividends. As of this past January, Nicaragua's central grid, the Sistema Interconectado Nacional (SIN), now receives roughly 36 MW of electricity from the San Jacinto Tizate geothermal plant, which draws its power from underground steam vents at the base of the Telica volcano. Polaris, the Canadian firm that operates San Jacinto Tizate, plans to expand the plant's installed capacity to 72 MW by the end of the year. That's a substantial amount of power given that demand in Nicaragua fluctuates between 218 MW and 570 MW, according to the MEM.

Studies are underway for other potential geothermal projects, which are costly to set up but, once in operation, have an advantage over other renewables—such as solar and wind plants—in that the flow of power they produce is steady and therefore more reliable. Overall, MEM estimates Nicaragua's geothermal potential at roughly 1,500 MW. Plants could eventually be set up in a dozen areas along the volcanic Maribios range, MEM reports suggest.

The country is beginning to make major strides with wind power, too. Already home to Central America's largest wind park—the 63 MW Amayo I and II facilities near Rivas—Nicaragua will have a second such wind farm in operation starting next month: the 39 MW Eólico La Fe-San Martín facility. Several others, including a 40 MW park being built by ALBAeólico, an energy branch of ALBANISA, are under construction as well. In total, seven wind parks—with a combined installed capacity of roughly 300 MW—are expected to begin operating within the next several years. MEM estimates the country's total wind power potential at roughly 800 MW.

Staying on target

Just two years into its Plan de Expansión de la Generación Eléctrica 2010-2017, the Nicaraguan government has not only boosted the country's overall power supply but started making good on its promise to "green up" the electricity sector as well. Thanks to the new wind farms and recently expanded San Jacinto Tizate geothermal plant, 35% of Nicaragua's electricity is now renewable, up from 25% three years ago. Authorities expect the grid to be 40% green by the end of the year and reach the 50% mark by 2013.

And given that its 2017 deadline is still five years away, the government's target of 90% renewables may not be so implausible after all—especially with construction expected to begin next February on Tumarín, a billion-dollar dam project slated for eastern Nicaragua's Río Grande de Matagalpa. A Brazilian venture, the Tumarín hydroelectric project will boast an installed capacity of some 250 MW. Construction is expected to last about four years.

"If you add it all together, in six years we could have 650 MW of renewable-energy capacity at the country's disposition," Rappaccioli told *El Nuevo Diario* last year. "This will help break our dependence on hydrocarbons, which in recent years have made the country's electricity costs spike."

In the private sector as well, companies like San Jacinto Tizate operator Polaris say Nicaragua is indeed on its way to a nearly complete green-energy overhaul. Assuming investment levels hold steady, the country's electricity sector should be about 80% renewable by 2017-2018, Polaris general manager José Antonio Rodríguez predicts.

Generating investor buzz

Polaris is a subsidiary of Ram Power Corporation, one of several foreign corporations that together have contributed record amounts of investment capital in recent years. Foreign direct investment (FDI) in Nicaragua's energy sector totaled US\$217 million in 2011, up 37% over the previous year, according to ProNicaragua, the government's investment-promotion agency. More than two-thirds of that money went into renewable projects.

"A variety of international banks support investment [into renewable-energy ventures], including the Banco Centroamericano de Integración Económica," César Zamora, president of the energy company AEI Nicaragua SA, told *El Diario Nuevo*. "But it is worth pointing out as well that local banks are also investing in development projects and offering competitive loans."

The flurry of green-energy investments recently caught the attention of the Inter-American Development Bank's Washington, DC-based Multilateral Investment Fund (MIF), which featured Nicaragua prominently in its first annual *Climascope* report. Drafted in cooperation with Bloomberg, the *Climascope* study ranked Nicaragua second in Latin America and the Caribbean in its green-energy investment climate. Only Brazil, which has long relied on hydroelectric power, scored higher.

The report described Nicaragua's biomass plants, which are run on sugarcane residuals, as an "emblematic starting point" for the green-energy sector but said the country's greatest potential is in geothermal production. "Since 2009, this promising sector has received the biggest chunk of all clean-energy investments," according to the MIF/Bloomberg study.

What's not yet clear, however, is how—or when—Nicaragua's energy about-face will affect the country's notoriously high electricity prices. David Castillo, who heads the Instituto Nicaragüense de Energía (INE), expects electricity rates could drop by 15% in the next five years as power producers reduce their oil-related expenses. At the same time, however, he warns

consumers not to expect savings in the short term, especially since current prices are already offset by government subsidies, which rely on ALBA loans.

"These new [electricity] projects won't change the cost situation overnight," Castillo told El Diario Nuevo earlier this year. "Energy prices will start going down, but don't forget that last year we borrowed US\$107 million from ALBA to prevent power rates from rising. And this year they're loaning us US\$52 million. According to a law approved by the Asamblea, whatever price reductions we get from renewable energy must first go toward paying off those debts."