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## Nicaragua: Energy-hungry Country Opts For Large-scale Hydro Dam

In an effort to diversify its heavily fossil-fuel-dependent electricity sector and at the same time meet rising demand, Nicaragua is putting its eggs in the hydroelectricity basket, opting for conventional large-scale dams despite growing international awareness about their social and environmental drawbacks. Currently about 80% of Nicaragua's electricity comes from petroleum-burning generating plants, making the impoverished, non-oil-producing Central America nation particularly vulnerable to external market factors. Sky-high oil prices put a serious crimp in electricity production in 2006, when Nicaragua suffered periodic blackouts. Nowadays, the problem has more to do with supply, as delays in shipments of subsidized oil from Venezuela are threatening a new energy crisis. "Because of all the problems we're having, we can expect electricity generation to be more expensive in the coming months," energy expert Narciso Mayorga explained during a seminar held March 12 by the Instituto Nicaraguense de Defensa de los Consumidores (Indec). "Remember, our matrix depends on oil for 80%. To reverse this situation, we need major investments for the promotion of renewable-energy projects."

Rising demand is also a concern, especially as Nicaragua, which among Central America countries has the lowest percentage of people with access to electricity, works to extend service to historically unconnected rural areas. Since 2001, demand has increased by approximately 4% annually. As of 2006, only 68% of Nicaraguans had access to electricity compared with a Latin American average of 94%. Currently, Nicaragua's electricity grid has an installed capacity of approximately 800 megawatts, small even by Central American standards. Panama and Honduras, in contrast, have installed capacities that are twice as big, according to the UN's Economic Commission for Latin America and the Caribbean (ECLAC). Guatemala and Costa Rica have the area's largest generating capacities, with more than 2,000 MW each, while El Salvador which has a slightly larger population than Nicaragua (6.1 million versus 5.8 million) has an installed capacity of 1,312 MW.

Foreign investors plugging in Nicaragua's matrix, however, is finally starting to buzz with activity, with some foreign investment flowing to nonconventional, renewable projects, particularly wind and geothermal. The recently opened Amayo wind park now supplies roughly 60 MW. Foreign firms are also looking to tap the country's geothermal (volcanic) reserves, deemed the largest in Central America. Last October, Nicaraguan authorities awarded exploratory sessions to a pair of Canadian firms to begin drilling experimental steam wells near Granada. Still, a decision made public earlier this month by Nicaragua's Ministerio del Ambiente y Recursos Naturales (MARENA) suggests the true thrust of Nicaragua's energy development is going toward large-scale hydroelectric dams.

On March 3, MARENA approved a US\$700 million dam venture known as the Tumarín project, giving the plan's Brazilian developers permission to begin construction as early as May. The 220 MW project is a joint effort between the huge state utility Centrais Elétricas Brasileiras (Eletrobras) and the company Centrais Hidroeléctricas de Centroamérica (CHC), also Brazilian owned. Once completed, the Tumarín facility will be Nicaragua's largest single source of electricity and, its backers argue, save the country some 2 million barrels of oil annually. "If we look toward 2014, when the Tumarín dam is in operation, the power generated will represent

between 25% and 26% of the country's total energy demand," Mining and Energy Minister Emilio Rappaccioli told reporters following the recent MARENA ruling. The dam and accompanying 50-sq km reservoir are slated for the Rio Grande de Matagalpa, Nicaragua's second-longest river, which runs some 430 km through the Region Autonoma del Atlantico Sur (RAAS) before depositing into the Caribbean. In addition to a 60-meter curtain dam, the Brazilian firms plan to build a 50 km road between the towns of Tumarin and San Pedro del Norte and a 300-meter bridge. The project's backers say it will provide local jobs more than 3,000 direct and indirect positions, improve access to the isolated area, and spur the local tourism industry.

To secure MARENA's environmental approval, the companies also agreed to reforest some 900 hectares of land around the site of the dam. "The idea is to plant native species to protect the river-valley ground and the area's biodiversity," said MARENA head Juana Argenal. "They'll start with a million trees." Argenal went on to say that the project's environmental impact will be minimal since local farmers and ranchers have already cleared much of the surrounding area. Going out of style Large-scale hydroelectric dams, praised for decades as a clean, reliable source of energy, have come under increasing scrutiny in recent years by environmental groups who say such facilities alter both upstream ecosystems, by flooding river basins, and downstream environments, by cutting the natural flow of water. Big dams often have a steep social cost as well, as they displace local communities in many cases. The Tumarin project is no exception. The dam and reservoir are expected to push more than 1,000 residents off the land. Electrobras and CHC have promised to purchase approximately 300 privately owned properties and help relocate the soon-to-be-displaced residents. In a 2000 report, *Dams and Development: A Framework for Decision Making*, the international World Commission on Dams (WCD) found that, while "dams have made an important and significant contribution to human development...in too many cases an unacceptable and often unnecessary price has been paid to secure those benefits, especially in social and environmental terms, by people displaced, by communities downstream, by taxpayers and by the natural environment." The WCD was formed in 1997 by the World Bank and the World Conservation Union (now the International Union for Conservation of Nature, IUCN) in direct response to growing opposition to large dam projects. Earlier in the decade, community leaders, concerned precisely about such social and environmental costs, organized against a US\$1 billion hydroelectric venture known as the Copalar Project, also planned for Nicaragua's RAAS. That project, a massive 1,750 MW mult dam scheme targeting several area rivers, was eventually shelved.

Facing little resistance No such opposition has surfaced against the Tumarin project, although Celia Contreras, an organizer with a local group called Casa de la Mujer, says the Brazilian venture has many of the same inherent drawbacks. Casa de la Mujer was actively involved in the fight against the Copalar project but let its guard down in 2006 when the megaproject was withdrawn, Contreras told NotiCen. "The current president [Daniel Ortega] co-opted the coalition saying that Copalar wouldn't go forward because of its environmental impact," she said. "But what he did was change it for Tumarin, saying the impact would be less. That's a lie." The group, based in the town Bocana de Paiwas, some 60 km from the site of the Tumarin dam, has tried to raise public awareness about what it sees as a backdoor approach to reintroducing the Copalar project. Such efforts, however, failed to gain much traction among local residents and politicians. Instead, the developers and their government backers have successfully sold the idea that the dam will bring development to the isolated and impoverished

RAAS. "They say it'll create jobs, that it'll benefit the country by providing energy keep in mind we've had an energy crisis," said Contreras. "Also, our local authorities are limited. They have very low education levels. They owe their positions more to political considerations than to their abilities." The Tumarín project enjoys strong support from both the national and local governments. The Asamblea Nacional (AN), Nicaragua's unicameral legislature, threw its weight behind the project last July. In December the RAAS' regional council approved the dam as well.

Shortly afterward, a local court, at the behest of a dissident deputy concerned about resident displacement, issued a temporary freeze on the project. In February, however, the Corte Suprema de Justicia's Sala Constitucional overturned the ruling. The Brazilian dam project has the support of international lenders as well. The Banco Centroamericano de Integración Económica (BCIE) just announced a US\$422 million loan to Nicaragua, nearly triple the amount it gave in 2009. Much of that money is earmarked for hydroelectric development. The Inter-American Development Bank (IDB) and Brazil's Banco Nacional de Desenvolvimento Econômico e Social (BNDES) have also promised loans.