

5-4-2011

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Recommended Citation

Witte-Lebhar, Benjamin. "Wind Power Present, Not Prodigious in Chiles Energy Market'." (2011). https://digitalrepository.unm.edu/la_energy_notien/52

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Wind Power Present, Not Prodigious in Chile's Energy Market

By Benjamin Witte-Lebhar

Little by little, Chile is plugging wind power into its otherwise conventional electricity grid. So far, however, the sector's contribution to the overall electricity supply remains minimal, leading some analysts to question whether the country's private energy providers are really ready to welcome the proverbial winds of change.

Chile added the latest piece of its power puzzle this past February, when French multinational GDF Suez cut the ribbon on five new generators for its Monte Redondo wind park in the Coquimbo Region, roughly 325 km north of Santiago. With the expansion, Monte Redondo now boasts an installed capacity of 48 megawatts.

GDF Suez, the world's largest utility, is Chile's fourth-leading electricity provider after Italian-owned Endesa; AES Gener, a US firm; and Colbún, a Chilean company. Together the four companies control more than 75% of the country's total power supply, estimated at roughly 15,700 MW.

"We congratulate initiatives like the Monte Redondo wind park because they contribute to Chile's development with clean energy, using modern and environmentally friendly technologies," said Mining and Energy Minister Laurence Golborne during the Feb. 8 inauguration ceremony.

"Wind energy has grown rapidly in recent years," he went on to say. "We now have 167 MW of installed wind power capacity, and about 1,500 MW worth of projects are likely to be developed in the not too distant future."

Given that, until four years ago, Chile had just a single wind-power facility in operation (a 2 MW, three-windmill station in the far southern Aysén region), growth of the wind sector has been rapid. The country's wind-power capacity has increased more than eightyfold since 2007, when Endesa opened the country's first proper wind farm, the 18.2 MW Canela I in coastal Coquimbo. Endesa opened Canela II--a 60 MW expansion--two years later. GDG Suez inaugurated Monte Redondo the same year, and, in January 2010, Norway's SN Power opened the 48 MW El Totoral wind park, also in Coquimbo.

"This is the culmination of a dream. We're harnessing the power of the wind," said then President Michelle Bachelet (2006-2010) during the El Totoral inauguration.

More wind farms are on the way. Construction is expected to begin soon on a 100 MW facility near Quillagua, in the northern Antofagasta Region. A 112 MW wind farm is planned for the southern island of Chiloé, and in Coquimbo, environmental authorities have approved the massive 500 MW Talinay facility. To be built in several phases, the US\$1 billion Talinay project is slated to be Latin America's largest wind farm.

A drop in the bucket

While wind power certainly appears to be catching on in Chile, many observers say it is far too early to hail the arrival of a green-power revolution. Put in to a bit of context, the numbers--even taking into account wind parks expected to open in the coming years--are modest at best.

Its roughly 170 MW worth of windmills may be enough to make Chile the third-leading wind-power producer in Latin America--behind Brazil and Mexico--but it still represents a paltry 1% of the national grid. The rest of Chile's 15,700 MW come from large-scale hydroelectric dams (roughly 36%) and thermoelectric plants, which run mostly on coal or natural gas.

Chilean authorities say they would like wind, solar, and other nonconventional renewable energy (NCRE) sources (a category that excludes large-scale hydroelectric dams) to play a much greater role in the electricity matrix. With that goal in mind, President Bachelet signed legislation in 2008 establishing a 15-year 10% NCRE target. Her successor, President Sebastián Piñera, has set the bar even higher, at least in theory, calling for 20% NCRE by 2020.

Researchers say the potential is definitely there. Geographically, Chile is extremely well-suited for developing NCRE projects. It boasts one of the longest coastlines of any country in the world, clearly an asset for wind-power production, and--in the north--extremely high solar-radiation levels. Technically, there's no reason why Chile could not follow the lead of countries like Spain, Germany, the US, and China, each of which derives more electricity from wind power alone than Chile does using all of its energy sources combined.

The Global Wind Energy Council (GWEC) says China, the world leader in wind power (42,287 MW), added 16,500 MW worth of windmills last year alone. The US, second on the list, has 40,180 MW of installed wind capacity, while Germany and Spain have 27,214 MW and 20,676 MW of wind power, respectively. Even tiny Belgium, which has about two-thirds the population of Chile, added 350 MW of wind power (double Chile's total wind capacity) in 2010, bringing its overall capacity to 911 MW, roughly on par with Brazil, the Latin American leader.

Yet for all of Chile's promises and potential, few observers expect the country to come even close to meeting President Piñera's ambitious "20-20" target. Even with the eventual addition of the 500 MW Talinay and other ready-to-build wind farms, there's little indication that wind power--as a percentage of Chile's total capacity--will significantly rise. That's because in the meantime investors keep pumping huge amounts of capital into conventional energy projects.

Just this past February, environmental authorities approved plans for a 2,350 MW coal-burning plant in the far north. In the far south, meanwhile, Endesa and Colbún--through a joint venture called HidroAysén--are seeking approval for a massive 2,750 MW hydroelectric complex. Those projects alone have more than 10 times the capacity of the much-heralded Talinay farm. While

Chile will no doubt build new wind farms, it is expected to add even more conventional power plants.

"There's been a lot of talk and few concrete measures," Sen. Patricio Walker of the moderate Demócrata Cristiano (DC) party said during a March visit to the Aysén capital of Coyhaique. "They say that by 2010 we'll get 20% of our power from nonconventional renewables, but right now [NCREs] amount to only 2% of the grid's 15,000 MW. That's not a lot of progress."

Even Piñera's Energy Minister Golborne is skeptical about Chile's ability to reach the 20-20 platform. "Reaching that level is something we aspire to, but, as I've said publicly, we're in 2011," he recently told reporters. "2020 is [just] nine years away, meaning it's very challenging to be able to make that happen."

A question of incentives

Why all the cynicism? Why, if the president is calling for green energy, are wind farms so slow to take hold in Chile?

For many observers, the answer has everything to do with a different shade of green--money. Under former dictator Gen. Augusto Pinochet (1973-1990), Chile privatized its electricity sector, which is now dominated by just a handful of mostly foreign-owned players. Chilean energy policy, therefore, tends to be dictated by the market, by companies like Endesa, AES Gener, and GDF Suez, which have little interest in gambling with more expensive alternative-energy sources when they can instead opt for conventional money-makers, like large dams and thermoelectric plants.

What's missing, say analysts, is more direct state involvement. Energy companies and their creditors need concrete incentives, like loan and price guarantees. Often, investors win approval for their projects by government environmental authorities, only to find that banks will not loan them the money they need to turn their blueprints into working wind farms. Incentives are needed as well to improve power-line infrastructure--to connect out-of-the-way places (where wind potential may be particularly high) to the national grid.

"In all the countries like Spain [that have made major wind-power progress], the state has invested money to make it work," Manuel Baquedano, a Santiago-based environmentalist who heads the Instituto de Ecología Política (IEP), explained in a recent interview with Radio Universidad de Chile. "We're at the stage right now where we have to convince people like the minister of energy to put their *lucos* [Chilean pesos] in renewables and not in questionable alternatives like nuclear energy studies or coal subsidies."

If Chile is really serious about cleaning up its energy matrix, it also needs to consider stricter regulations--policies that discourage companies from choosing the easy and cost-effective route of conventional dams and coal-burning plants. Bachelet's 2008 renewables legislation, under which major power providers are fined if they fail to meet the law's initial 5% NCRE benchmark, was a step in that direction. Critics, however, say the law lacks teeth--that companies are likely in many cases to pay the modest fines rather than sink money into expensive renewable ventures.

The principal [barrier] is that the big companies that control the electricity market have no interest in any additional companies entering [the market] to generate power. All the other

obstacles start from there," said Universidad de Chile math and physical sciences professor Roberto Román.

Baquedano agrees. "This is not a technical issue but rather a matter of having the political will to break up the monopolies that these companies have, since right now they have no motivation to see NCREs develop," he said.