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Benjamin Witte-Lebhar

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After Fukushima, South America Reassesses Nuclear-Power Push

By Benjamin Witte-Lebhar

The recent nuclear disaster in Japan's tsunami-damaged Fukushima reactor has shaken--but not buried--plans for an atomic energy surge in South America, which right now has just four of the world's 442 nuclear power plants.

Prior to the accident, analysts had anticipated something of a nuclear renaissance in South America. Non-nuclear countries like Chile, Venezuela, and Uruguay were seriously flirting with the atomic-energy option, investing public funds in exploratory studies and/or signing nuclear-technology accords with countries like Russia and France. At the same time, Brazil and Argentina--the two South American countries with atomic power facilities already in place--had begun expanding their respective nuclear industries.

The regional power push was part of a global resurgence for nuclear energy. Vilified after the 1986 Chernobyl disaster in the Ukraine, atomic energy had been very much on the comeback trail worldwide in recent years, aided in large part by a shift of global environmental priorities. As the world's leading scientific and environmental voices began to sound the alarm about climate change, nuclear power--once an ecological no-no--has gradually been recast as a clean alternative to CO₂-belching coal-fired or oil- and gas-burning thermoelectric plants.

But in the past two months, the Japanese nuclear crisis has once again shifted the terms of debate, forcing countries with atomic power plants to examine their own possible security shortcomings and prompting non-nuclear nations to reassess the option altogether. South America is no exception.

Just saying "no"

For Peruvian President Alan García (1985-1990, 2006-2011), the Fukushima fiasco was a good reminder of why his country should just say "no" to nuclear power. Speaking to reporters on March 17, the outgoing president promised that Peru, thanks to its hydroelectric potential and gas and oil reserves, can stay nuclear-free for at least another century. Atomic energy is a "threat," which is all the more dangerous for Peru, "given its position on the Pacific Rim," he said.

The Japanese nuclear disaster provoked a similar reaction in Venezuela, which is even more endowed than Peru in oil, natural-gas, and hydro resources. Unlike Peru, however, Venezuela had previously given the nuclear option serious consideration. Just last October, Venezuelan President Hugo Chávez inked a deal with Russia to build a pair of atomic power plants. Under the controversial accord, Russian state power company Rosatom was to help the South American oil giant build two 1,300-megawatt nuclear reactors.

But after the Fukushima accident, Chávez--who had previously defended the nuclear project--suddenly changed his tune, saying that nuclear power plants are "extremely risky and dangerous for the whole world," and adding, "Despite Japan's great technology and advances, look at what is happening with some of its nuclear reactors."

Talk of embracing nuclear technology has cooled in Uruguay as well. Unlike Venezuela and Peru, the tiny Atlantic nation of just 3 million people has extremely limited energy options, but it also has only modest needs. Its current installed capacity is just over 2,500 MW. Neighboring Argentina, by contrast, has 10 times as much electric power (25,000 MW).

The country derives more than half its electricity from large-scale hydroelectric dams, including the 1,800 MW Salto Grande power plant it shares with Argentina. The rest comes from thermoelectric facilities--for which Uruguay must import fuel--and a few small wind parks.

Analysts say Uruguay has already squeezed as much as it can out of its hydro resources. And nonconventional renewables (NCRs) like wind or biomass generators are expensive. It is hardly surprising, therefore, that, under former President Tabaré Vázquez (2005-2010), the government began openly exploring the nuclear option, going so far as to dispatch fact-finding teams to Finland.

Politically, however, nuclear power was never going to be an easy sell in Uruguay, which actually outlaws the option. At least in the short term, the Japanese nuclear crisis makes it even less likely that backers of the technology will revoke the country's atomic ban.

"We can't discount any alternative, although what happened recently in Japan has raised questions about a number of things. It seemed like Japan had everything under control, but it turned out not to be the case," Fernando Longo, vice president of Uruguay's Unidad Reguladora de Servicios de Energía y Agua (URSEA), explained in a recent interview with Ecos Regionales. "We'll have to see what the future holds for [nuclear power] on a global level, because right now everything about the nuclear energy issue is being re-examined."

Full steam ahead

Reactions have been significantly different for Uruguay's nuclear neighbors, Argentina and Brazil, which have two nuclear power plants apiece and are each in the process of constructing a third. While the partial Fukushima meltdown prompted both governments to heighten security, it failed to convince either to derail their nuclear-expansion projects.

"So far, no country has explicitly declared that it is going to cancel its thermonuclear-generation program because of what happened in Japan," Francisco Rondinelli of the Associação Brasileira de Energia Nuclear (ABEN) told the Italian-based International Press Service. "What has been said is that the safety systems of currently functioning plants will be checked."

Brazil's two nuclear power plants, Angra I and Angra II, (opened in 1985 and 2001, respectively) together have an installed capacity of approximately 2,000 MW, equivalent to less than 2% of the country's total available electricity. Construction on a third facility, Angra III, began last year. The power plant is slated for completion by 2015 and is expected to have an installed capacity of 1,350 MW.

In Argentina, South America's nuclear pioneer, Japan's recent woes have agitated already critical environmental and citizens groups but done little to dissuade the government of President Cristina Fernández de Kirchner from forging ahead with plans to revitalize the country's aged atomic power industry.

Argentina's then military government opened Latin America's first atomic power plant, the 335 MW Atucha I facility, in 1974. A second commercial reactor, the 600 MW Embalse plant in the northcentral province of Córdoba, went online a decade later. Still in operation, the aged plants represent roughly 6% of Argentina's total installed capacity.

Construction on a third facility, Atucha II, began in 1982 but progressed slowly and was later abandoned. With the Chernobyl disaster dampening enthusiasm for nuclear power worldwide, plans for several other Argentine reactors fell by the wayside as well.

But in recent years, under the leadership first of former President Néstor Kirchner (2003-2007) and later Fernández de Kirchner, Nestor Kirchner's widow and immediate successor, Argentina has made a concerted effort to both dust off and expand its nuclear power industry, relaunching the 745 MW Atucha II project, which is expected to open later this year, and securing congressional approval for a fourth atomic power plant. The government is also pouring millions of dollars into refurbishing the Atucha I and Embalse plants.

With all that additional power in place, the Fernández de Kirchner government hopes that by 2025 Argentina will generate at least 15% of its electricity from nuclear sources, thus reducing its reliance on natural gas and other fossil fuels, which the country currently uses to generate nearly 60% of its electricity.

Conspicuously quiet on the unfolding Japanese crisis, the Fernández de Kirchner government appears determined to meet that nuclear energy target regardless of how the Japanese situation may play into public opinion. To would-be critics, Argentine nuclear authorities say their country is simply not at risk of a Fukushima-style disaster, which was triggered by a massive magnitude 9.0 earthquake and resulting tsunami.

"A situation similar to what happened with the nuclear power plants in Japan couldn't happen here because we use different technology and we're not in a seismic zone," Gabriel Barceló, institutional relations manager with the government's Comisión Nacional de Energía Atómica (CNEA), told reporters shortly after Japan's nuclear woes first went public.

The curious case of Chile

The same cannot be said for Argentina's cross-Andean neighbor, Chile, which was struck by a huge earthquake just last year. Like the Japan temblor, Chile's magnitude 8.8 quake triggered deadly tsunami waves that razed several coastal towns. Unlike Japan, the natural disaster did not have nuclear repercussions—simply because Chile does not have any nuclear power plants.

That, however, could eventually change, as the government of President Sebastián Piñera--like his predecessor President Michelle Bachelet (2006-2010)--is spending considerable time and money exploring the nuclear option.

During a visit to Europe in October 2010, Piñera and French President Nicolas Sarkozy signed a "strategic alliance" under which Chile will send some 30 professionals to France to learn the ins

and out of its formidable nuclear power industry. The Chilean president also lobbied for inclusion in the Nuclear Energy Agency (NEA), part of the Organization for Economic Cooperation and Development (OECD).

In January, French energy giant GDF Suez revealed it has already entered into talks with Chilean officials to eventually build the country's first nuclear power plant. A month later, on Feb. 24, Chile's Mining and Energy Minister Laurence Golborne signed another nuclear deal with France. Among other things, the cooperative agreement focuses on extracting Chilean uranium and sharing nuclear technology.

Signed just three days before the one-year anniversary of the 2010 quake, the accord with France offered further evidence that as far as the Piñera government is concerned, earthquakes and nuclear power plants are not mutually exclusive. Part of that confidence might be because Chile actually has two tiny research reactors. In operation since the 1970s, the facilities--used mostly for medical studies--survived major earthquakes in both 2010 and 1985 (magnitude 8.0).

"Chile's seismic activity is not an impediment," Vergara, a board member with the government's Comisión Chilena de Energía Nuclear (CCHEN), explained in an article published March 1 (just 10 days before the Japanese quake) by the *Global Post*. "It can raise the cost of building the reactors, to make them more robust or design them to adapt to particular geological conditions, but it doesn't make them unviable."

That's an argument Vergara and others who favor the nuclear option are now finding a lot more difficult to sell. With memories of last year's quake still very much fresh in the many people's minds, events in Japan have made the potential risks of nuclear power that much more real for many Chileans. An April survey by the polling firm IPSOS suggested that more than 84% of Chileans now oppose developing nuclear power plants.

"We cannot forget what happened one year ago when we had this big earthquake. We have a long coastline, and we suffered not so much from the earthquake but from the tsunami. So the association with the tsunami in Japan is immediate," Chilean physicist Jorge Zanelli of the Centro de Estudios Científicos de Santiago (CECS) told *NotiEn* during a May conference in Miami, Florida.

But while the Chilean government has tried to reassure the wary Chilean public--saying it will neither make a final decision on the nuclear option nor begin building a nuclear plant during Piñera's presidency (2010-2014)--it nevertheless continues to actively pursue the option.

On March 18, just one week after the devastating Japanese earthquake, Piñera inked a nuclear deal with US. The point of the agreement, the Chilean president told reporters, "is to better understand this energy and to better train our engineers and technicians so that in the future we can make more informed decisions."

Among those supporting the Piñera's position is Dr. Zanelli, who blames much of the public antagonism toward nuclear energy on exaggerated media reporting. In 2007, Zanelli headed a high-profile committee tasked by the Bachelet administration with determining the viability of the nuclear option. In its well-publicized final report, the Comisión Zanelli concluded that, while Chile is not yet ready to embrace atomic energy, it should nevertheless keep the option on the table. Four years and two major earthquakes later, the nuclear expert's position appears to have morphed into one of full support.

"In the next 10 years, we'll see our carbon footprint grow by 100% if we don't do anything else. So, unless we're willing to pay the highest electricity bills on the continent, while having one of the highest carbon footprints on the continent, I think we have to do something about nuclear energy," he said. "There's still a future of nuclear energy everywhere in the world, especially in Latin America. What Fukushima has done is probably change the agenda for the near future, but it's not going to change the agenda very much in the long term."