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Brazil Announces Expanded Uranium Enrichment Program

by LADB Staff

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The Brazilian government has stepped up its uranium-enrichment capacity in an effort to increase its self-sufficiency in producing fuel for its nuclear industry. The move to increase uranium enrichment parallels efforts in Iran to do the same, efforts that the US says are a cover for the production of nuclear weapons. Brazil's government says that its program pertains only to commercial use of nuclear fuel, not military use, especially since the Constitution bans producing nuclear weapons. Brazil's announcement of increased enrichment activities may also signal an attempt to become a more powerful player on the world stage and within the UN.

Enrichment center to cut out European intermediaries

Brazil inaugurated a uranium-enrichment center capable of producing nuclear fuel for its power plants earlier this month. The center will save millions of dollars the country now spends to enrich fuel at Urenco, a European enrichment consortium, Science and Technology Minister Sergio Rezende told the government news agency Agencia Brasil on May 6. Brazil has the world's sixth-largest uranium reserves with important deposits in the northeastern state of Bahia, but has been unable to use the material for energy without shipping it to and from Urenco. Rezende stressed Brazil's commitment to the peaceful use of nuclear energy at a ceremony May 5 at the plant built on a former coffee plantation in Resende, about 60 km northwest of Rio de Janeiro.

The government-run Industrias Nucleares do Brasil SA (INB) has been conducting final tests at the enrichment plant, which is set to open this year. With its opening, Brazil will join the world's nuclear elite. Brazil says its plant will be capable of enriching natural uranium to less than 5% uranium-235, an isotope needed to fuel its two reactors. Warheads need ore that has been enriched to 95% uranium-235, a material Brazil says it cannot and will not produce.

"If you can enrich to 5%, you're decades away from enriching to 90%," Odair Dias Goncalves, president of the Comissao Nacional de Energia Nuclear, told the Associated Press. "You need a whole new technology that we don't have." But David Albright, a former UN inspector who runs the Washington-based Institute for Science and International Security, said he worked with Goncalves at the Brazilian Physics Society on a project to show that the Brazilian centrifuges could be used to produce highly enriched uranium, even if that was not their intended use. "Centrifuges are very flexible," said Albright. "Reconfiguring the cascades or recycling the enriched uranium multiple times can allow for the production of weapons-grade uranium."

Brazil seeks enriched uranium self-sufficiency by 2015

Brazilian leaders insist the fuel will be used for the nation's US\$1 billion nuclear-energy industry. Already Latin America's biggest nuclear-power provider, Brazil plans up to seven new atomic plants to reduce its dependence on oil and hydroelectric power and plans to export enriched uranium

to provide energy for other countries within a decade. The May 5 announcement of the plant's inauguration came shortly after Brazil's neighbor Bolivia announced that it would be nationalizing its natural-gas resources (see NotiSur, 2006-05-12).

Brazil's state petroleum company Petrobras has large investments in Bolivia's gas fields, and Brazil depends on them for a significant portion of its energy imports. The specter of energy shortage has loomed over Brazil as Bolivia's President Evo Morales has laid out the terms of his nationalization program and declined to grant Petrobras the indemnification it is demanding. Carlos Freire Moreira, a director at INB, said the Resende factory would be overseen by the Brazil-Argentina Nuclear Energy Application Agency. The Brazilian Navy developed the technology for INB's Resende factory with support from the National Institute of Nuclear Research. The new facility is intended to make Brazil independent of enriched-uranium imports that now cost the country US\$16 million annually. To date, Brazilian uranium has been transported to Canada for conversion into hexafluoride gas and then to the United Kingdom for enrichment before it returns to Brazil for fabrication into fuel elements.

In the first phase of operations, running from now until 2012, the factory will supply some 60% of the enriched uranium needed by the country's two nuclear power plants, Angra 1 and 2. By around 2015, the factory is expected to be supplying 100% of Brazil's enriched uranium. Rezende said in March that Brazil has a plan to build seven nuclear plants during the next 15 years, two of them in the country's poorest region, the northeast.

Luis Hiroshi Sakamoto, the director of planning, management, and environment at Eletronuclear, the company that operates the Angra 1 and 2 plants, says that Brazil will need another nuclear-power plant to meet demand for electricity in the near future. Sakamoto told government news agency Agencia Brasil in January that it would take US\$1.8 billion and five years to complete the partly finished Angra 3, located next to the Angra 1 and 2 reactors. Angra 3 was scheduled to be operating in 1988, but it was never completed although US\$750 million has been spent on it.

All three of Brazil's nuclear-power plants are sited closely together at a beach resort, Angra dos Reis, on the coast of the state of Rio de Janeiro, 150 km west and slightly south from the city of Rio de Janeiro. The uranium-enrichment facility at Resende is about 60 km north of Rio.

Brazil seeking world-power status?

In 2004, the Brazilian government faced down demands from the International Atomic Energy Agency (IAEA) that it provide full access to its nuclear-energy programs (see NotiSur, 2004-10-29). Brazil initially refused IAEA inspections, arguing that providing full access to its state-of-the-art, Brazilian-designed centrifuges would put it at risk of industrial espionage. Since then, IAEA inspectors have visited the plant many times, monitoring the uranium that comes in and out, but they are still prevented from seeing the actual centrifuges, which are covered with opaque screens. The IAEA inspectors have said they are satisfied no material is being diverted.

Brazilian physicist Jose Goldemberg said Brazil would not be able to produce enriched uranium for export until 2014. "If we know how to enrich uranium, which we do, we may eventually even

become exporters of enriched uranium," Rezende said, pointing out that Brazil's reserves may be found to be the world's third-largest after more detailed study they are currently regarded as the sixth-largest. The minister said that, to sell enriched uranium on the international market, it would be necessary to invest in technology, to raise production, and alter the Constitution, which precludes uranium exports. The Constitution also states that "all nuclear activity within the national territory shall only be admitted for peaceful purposes and subject to approval by the National Congress," meaning a weapons-development program would be a constitutional violation.

Brazil had serious nuclear ambitions during the 1964-1985 military dictatorship, when it built the two nuclear-energy plants, worked to develop a nuclear submarine, and had secret plans to test an atomic bomb in a 300-meter deep, concrete-and-steel-lined hole in the Amazon jungle. That idea was formally scrapped in 1990, and former US Secretary of State Colin Powell said in 2004, "We know for sure that Brazil is not thinking about nuclear weapons in any sense." But Brazil's nuclear ambitions have been rekindled under leftist President Luiz Inacio Lula da Silva, in part, analysts say, because joining the nuclear club would boost Brazil's status internationally and possibly earn it a permanent seat on the UN Security Council. What is really at stake in both Brazil and Iran is self-image, physicist Goldemberg said. "It's nationalism, pride. That's the real reason."

Comparisons with Iran

The current bete noir of the administration of US President George W. Bush is the Iranian government effort to increase its uranium-enrichment capacity, but the US government has lodged no public complaints against Brazil for producing exactly the same fuel as Iran. Brazil like Iran has signed the Nuclear Non-Proliferation Treaty (NPT) and has the constitutional ban on military use of nuclear energy. Although Brazil is more cooperative than Iran on international inspections, some in the US worry that its new enrichment capability suggests that South America's biggest nation may be rethinking its commitment to nonproliferation.

"Brazil is following a path very similar to Iran, but Iran is getting all the attention," said Marshall Eakin, a Brazil expert at Vanderbilt University. "In effect, Brazil is benefiting from Iran's problems." While Iran leads a war of words against nuclear-armed Israel and has defied a UN Security Council request to stop all uranium enrichment, Brazil is viewed as peaceful and democratic. It does not have border disputes, is not in an arms race, and strives for good relations with all nations. Its last war ended in 1870.

"Brazil doesn't cheat on the NPT, and it does not exist in an area of high tension," said former UN inspector Albright. The US Embassy in the capital, Brasilia, referred all press inquiries to the State Department in Washington, DC, where spokesman Sean McCormack dismissed any parallel between Brazil's nuclear program and Iran's. "My understanding is they have a peaceful nuclear program," he said on May 4. Still, Brazil's enrichment program and its reluctance to allow unlimited inspections has raised suspicions abroad.

"Brazil is beginning to be perceived as a country apparently wanting to re-evaluate its commitment to nonproliferation, and this is a big part of the problem," said Jon Wolfsthal, deputy director for

nonproliferation at the Carnegie Endowment for International Peace in Washington. Another major player flouting the NPT, according to nuclear disarmament activists, is the US government, which has been making efforts to expand plutonium pit production for nuclear weapons, while top US officials have made public avowals that they were prepared to use nuclear weapons in Iraq and Iran.

While the US government says it intends only to maintain its nuclear arsenal, critics say plans to make new nuclear weapons and expand plutonium pit production for new bombs would violate the spirit of the NPT, which calls for nuclear disarmament. Greenpeace objects Greenpeace calls Brazil's new uranium-enrichment factory in Resende a step backward.

Guilherme Leonardi, the coordinator for nuclear energy at Greenpeace, says Brazil is investing in a technology that many countries are abandoning. Leonardi disagrees with experts who say that nuclear energy is clean. "Inevitably nuclear energy produces nuclear waste. And when you are dealing with nuclear energy there is always a risk of an accident at various points in the nuclear-fuel cycle in the processing of nuclear fuel, the generation of energy, or in disposing of the nuclear waste," he says. Leonardi also says that many countries are rethinking the nuclear-energy alternative. They are deciding against new nuclear-power plants, which is what Greenpeace says Brazil should do.

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