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Ana Cristina Powell

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BRAZIL OPENS FIRST COMMERCIAL SOLAR POWER PLANT, BUT CONTINUES TO UNDERUTILIZE SOLAR ENERGY POTENTIAL

By Ana Cristina Powell

The Tauá solar power plant, the first such facility in Brazil, began operations in August 2011, in the northeastern state of Ceará. The initial capacity of the Tauá facility will be 1 megawatt, obtained from 4,680 photovoltaic (PV) panels covering 12,000 square meters. The PV panels absorb sunlight and transform it into electricity that is fed into the national power grid. That is a modest contribution compared with the 14,750 MW capacity of the binational Itaipú hydroelectric plant alone, but it is the first step by Brazil on a path chosen long ago by other countries.

Only a month after opening the Tauá plant, MPX Energia S.A., the company that created it, already had the commitment from General Electric Company, the world's largest maker of electricity, to add another 1 MW of power to the plant, doubling its capacity. "Working with GE, we plan to grow our business at this plant to 50 MW," said Eduardo Kenner, chief executive director of MPX.

While the unstoppable growth of solar power seems to have gained a foothold in Brazil, countries with a temperate climate and much smaller territory, such as Germany and Spain, produce much more solar energy. Brazil, which has the largest territorial area in the tropics, meaning a huge amount of sun, is simply not taking advantage of its situation.

"The least sunny city in Brazil, Florianópolis, receives 40% more sun than the sunniest place in Germany," said Ricardo Ruther, from the Laboratório de Energia Solar at the Universidade Federal de Santa Catarina. "If the area of Itaipú Dam was covered by solar panels, it would produce more than double the energy produced by the hydroelectric plant."

Today Itaipú, the largest hydroelectric power plant in the country, provides for 25% of the electricity consumed by Brazilians, and, with what Ruther suggests, it would produce 50%.

The problem is the price. "Solar electric energy still costs about 10 times more than conventional electricity," said Enio Pereira, from the Instituto Nacional de Pesquisas Espaciais (INPE). One reason for the high price tag is that Brazil imports the photovoltaic panels from countries like Germany or the US, which have been investing in solar power longer and produce the equipment on a large scale.

The discussions about Brazil opening its first commercial plant began in 2009, with different projects proposed both in northern and southern areas. But all these projects, except for the recently opened MPX plant, are yet to be completed. If the proponents of these facilities follow through with their plans, they would be considered pioneers in an industry that should grow fast in the near future.

Several projects in planning stage

The largest of the proposed projects is in the northeast region, not far from Tauá, at the Polo Industrial de Guamaré in Rio Grande Norte. The facility would eventually have the capacity to generate up to 80 MW of electricity from 956 photovoltaic panels. The company has promised to have the plant in operation by the end of 2011.

Another smaller project is underway in Florianópolis in Santa Catarina state, where Eletrosul Centrais Elétricas S.A. announced plans to invest 10 million reais (US\$6.25 million) on photovoltaic panels that will be installed on the roofs of the buildings in their headquarters, as well as in the parking lot. The Megawatt Solar project will generate 1 MW, which will be fed into the power grid by the end of 2011.

A few states north in Minas Gerais, another plant is scheduled to open in October 2011. The Sete Lagoas project, named after the town where it is located, will have a 3 MW capacity and will cost 25 million reais (about US\$15 million). The investment comes from the Brazilian electricity company CEMIG and the Spanish company Solaria, which produces the PV panels.

Apart from these large-scale projects, Brazilians have chosen a cheaper and more viable option: solar thermal energy. As of 2009, 2.03% of Brazilian households were using solar water heaters, but there is a lot of room for growth. Since 67.7% of Brazilian households have electric showers, if these are replaced by solar thermal heaters the impact in consumption will be very significant. Both solar thermal and solar PV (photovoltaic) use panels as collectors to harness the energy from the sun. The difference is that solar thermal allows the sun's energy to heat a target and the panels, which are cheaper than the PV ones, capture 70% of the sun's heat for use, normally, in an individual home.

PV panels, however, convert the sunlight directly into electricity. The problem, besides the higher cost, is that, on average, only 12% of the sunlight is actually converted. When it comes to commercial solar power plants, however, the PV panels are the most common choice as they can feed electricity directly into the power grid that will then be used by any consumer in the community.

In either case, the obvious benefit of producing clean energy from an unlimited source will continue to motivate Brazilian citizens and the government.

Today the total installed PV power capacity in Brazil is of about 20 MW. In California, for instance, the largest solar power installation in the world, the Solar Energy Generating Systems facility, can produce 354 MW. Compared with that, or with the 17,320 MW of installed solar PV capacity in Germany as of 2010, the investment in solar energy so far in Brazil looks insignificant.

It is likely that it will be a long time before the Brazilian energy matrix changes and the country invests more heavily in solar technology. Today Brazil still lags behind all developing countries--and even its BRIC counterparts--in investments in solar energy. The opening of the Tauá plant is, however, a landmark. It indicates that a commercial interest exists and that one day solar energy could be one of the main sources of electricity in the country.