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Carlos Navarro

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# Solar Energy Seen as a Viable Alternative in Mexico

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By Carlos Navarro

Mexico is beginning to take a closer look at solar power as a way to reduce reliance on fossil fuels and meet the growth in demand for electricity, which is expected to increase by an average of about 1,800 megawatts annually over the next 15 years. But even though the government has sponsored some solar-energy projects, critics point out that there is not sufficient commitment to make this a significant alternative to fossil fuels.

## ***Solar farms viable in northern states***

One alternative for Mexico, which enjoys abundant sunshine, would be to promote the development of solar farms, and some projects are either planned or under way in the northern states of Baja California, Sonora, and Durango, and in the central state of Guanajuato. A handful of other projects have been developed on a smaller scale, including Mexico's largest solar-power garage in Zapopan, Jalisco state, and the street-lighting systems at the Universidad Nacional Autónoma de México (UNAM)-Queretaro campus and the historic district in Mexico City. There are also some efforts to support the use of solar energy in private homes and businesses.

Development of these projects is a step forward in Mexico's efforts to develop alternative sources of energy and reduce reliance on fossil fuels to create electricity. The Mexican government has already made a strong commitment to wind energy. But experts are still uncertain about whether the government has the same level of commitment and the resources to produce solar power on a large scale. Proponents argue that Mexico should take advantage of its abundant sunshine and devote the necessary resources to develop a solar-power industry. The long-term energy plan that President Felipe Calderón released for 2012-2026 put very little emphasis on solar energy, instead supporting the expansion of nuclear energy.

"Our country should discard the use of risky sources such as nuclear and shale gas," Greenpeace México said on its Web site. "The development of electricity with renewable sources could in the end cost less than the construction of new nuclear plants."

There are some efforts under way, primarily at the university level, to study the growth potential for Mexico's solar industry. UNAM has received government funding for a project to

calibrate the country's solar-radiation detectors. The purpose of the exercise, said UNAM researcher Mauro Germán Valdés, is to compile reliable data to determine whether developing solar power is a viable option in the near future.

"We will have systematized information from different parts of the country that will be useful for industry, physicists, architects, and biologists, among others," said Valdés, who is affiliated with UNAM's Instituto de Geofísica (IGf).

"You have to take into account that this is a young industry," columnist Luis Carriles wrote in the Mexico City daily newspaper El Universal. "The origin of commercial solar panels dates back to the 1970s, even some prototypes were already used earlier in the space race between the US and the former Soviet Union."

Organizations like Greenpeace México point out that Mexico's abundant supply of sunshine makes development of the solar industry an imperative. Citing the US-based magazine Photon International, the environmental-advocacy group said the cost of developing solar energy has dropped significantly, and there is no reason to delay full-fledged investments in solar energy.

Greenpeace México said the Comisión Federal de Electricidad (CFE) should promote the construction of private or public solar plants in states with abundant sunshine, such as Baja California, Sonora, and Chihuahua, which would be feasible given the falling cost of solar panels.

"This would guarantee an increase in jobs and a stable supply of safe and clean electricity," said Greenpeace México.

Mexico could draw on the experience of Germany, which has developed a viable solar industry despite a reduced amount of sunshine.

"The number of solar facilities in Central Europe is expected grow in 2012 because costs are down about 15%," said Greenpeace México.

Others agreed with this premise. Aarón Sánchez Juárez, a researcher at UNAM's Centro de Investigación, said the Mexican government has to make a greater commitment to promoting renewable energy, particularly solar and geothermal power. He said states like Chihuahua and Sonora are especially good for solar power. "About 73% of the contamination in Mexico is caused by fossil fuels," said Sánchez Juárez. "At the same time, options such as solar power are underused."

### ***Large solar farm under construction in Baja California***

And despite the lack of a comprehensive plan to promote large-scale development of solar energy in Mexico, the federal and state governments have demonstrated a commitment to support specific projects in northern and central Mexico, where sunshine is abundant.

One of the largest projects involves a solar farm, scheduled for construction in Cerro Prieto-Tecate in Baja California state. The facility will be constructed and operated by SolMex Energy, a joint venture between Baja California-based Grupo Musa and US the plant with a capacity of 450 MW is expected to begin at the end of 2012, with the facility beginning operations by late 2013.

"México has enjoyed great success in the development of wind energy, and this project supports our efforts to diversify our energy infrastructure and promote economic development," said David Muñoz, director of the state energy commission (Comisión Estatal de Energía de Baja California).

In Durango state, private companies from the US, Spain, and China have partnered with the state and federal government to develop four small solar farms. One of the largest projects, a 300-hectare facility, will be constructed near the municipality of Canatlán in the southwestern part of the state. The plant will be built and operated by Spanish company Siliken, with support from the Durango state government.

The US-Mexican partnership DelSol Systems-Skyline Solar has begun construction of a 500-kilowatt concentrated photovoltaic (CPV) plant in Durango. This will be the largest CPV plant in Latin America. "The Durango government seeks innovative solar solutions like the Skyline X14 System, where the upgradability of the technology permits extending the useful life of the system, improving financial returns and increasing social benefits," said Ruben Renteria Ontiveros, the state advocate of strategic projects for the state of Durango.

In Sonora, the state and federal government are working on a plan to construct a solar park in a yet-to-be-determined location in Sonora. Gov. Guillermo Padrés Elías said Energy Secretary Jordy Herrera has confirmed that Sonora would be a good location for a large solar facility. "I have no doubt that [solar energy] represents part of the future of clean energy in our country and in Sonora state," said Padrés Elías.

In Apaseo el Grande in Guanajuato state, Granite Chief México has announced plans to develop a solar park to meet the electricity needs of local industry. The park will provide electricity to the automotive plants of Honda, Mazda, and Volkswagen. "We hope to have the park in operation in the first half of the year," company director Fernando Arriaga Rosique told the Mexico City business newspaper El Economista. "This project is unique because it involves high-productivity solar energy. The plant will provide electricity for an entire industrial complex."

### ***Credits would help homeowners, businesses convert to solar power***

Beyond commercial projects, the future of solar energy lies in the conversion of homes and businesses to solar power. But full-scale development of solar energy in Mexico is easier said than done. "Converting the country into a leader in solar energy will require certain steps," Carriles wrote in El Universal. "According to some companies that participate in this sector, an important step would be to develop the photovoltaic industry. This could be accomplished by

reducing credit risks, offering financing plans, implementing installation guidelines, and training the personnel to install the solar panels."

The lower cost of materials in Mexico is supported by the rapid growth of domestic manufacturers of solar panels. But manufacturers say the expansion will be slow unless the government provides greater incentives for individuals and businesses to convert to solar energy.

Francisco Solís Baeza, director of the solar-panel manufacturer Conermex, said the market value of solar technologies in Mexico is about US\$30 million annually, but with a greater penetration, the value could nearly double to between US\$54 million and US\$60 million. He suggested the CFE and other federal agencies could help boost demand by providing credits to consumers who convert to solar power.