Havana solar energy

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Large consumers in the residential sector could find in the installation of solar ...

HAVANA TIMES -- On the outskirts of Havana, in the neighborhood of San Miguel de Padron, the electricity was cut off for an entire day last week. Local residents already fear that the blackout may signal the preparations for an upcoming energy shortage due to the recent political changes in Venezuela and the likely end to the oil subsidy program with Cuba.

Cuba"s electricity supply is still highly dependent on oil imports from neighboring Venezuela. But, like most Caribbean nations, Cuba has immense potential for energy generation from renewable alternatives, including solar energy, which can be utilized to meet domestic and small business needs.

Cuba"s renewable energy output is small, estimated to be at about 4% of its overall production in 2012. The government claims that it wants to increase its renewable energy generating capacity to 24% by 2030 through an investment of $3.5 billion. In order to reduce its dependence on fossil fuel imports, Cuba has instituted a wide-reaching energy efficiency program in 2006, which has overseen various energy saving initiatives for households, including the replacement of old and inefficient domestic appliances.

Another aspect of the improvement program was a switch to a more distributed country-wide network of energy generation with smaller power plants in order to reduce the potential for damages and blackouts that were previously the result of hurricanes affecting a more centralized network. Looking ahead, with the recently introduced economic reforms and a looming end to the US embargo, Cuba needs to act on the next phase of improvements to accommodate the economic growth and the rising energy demand for domestic and industrial use.

Solar energy potential in Cuba is high when considering that the country"s geographic position can enable a generation of 5kWh per square meter - about the average daily usage of one household. Although solar energy projects have thus far been limited to remote areas, capacity has increased considerably in recent years.

In 2013 Cuba’s first solar farm opened in Cantarrana, near Cienfuegos, with a capacity of 2.6 MWp. The Santa Teresa solar plant (4.5 MWp capacity) near the U.S. naval base at Guantanamo has started operating recently as well. The government has built a manufacturing plant that has produced 14,000 photovoltaic solar panels, also near Cienfuegos. Currently, the Granma Province has the largest percentage of renewable energy generation within Cuba at about 37% in 2013. By the end of 2014, over 1,500 off-grid solar systems were powering clinics, schools, community centers, and homes located in remote areas of Granma Province. The Cuban government has stated that it wants to have 700 MW of solar energy capacity installed by 2030.

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Cuba can rely on local expertise to help support the growth of solar energy around the country. It has a well-educated labor force and local organizations, such as the Centro de Investigaciones de Energ?a Solar (CIES), that are working on the research, development, and implementation of various solar energy projects and solutions. Additionally, CIES is developing the academic and technical capacity in all of Cuba"s provinces through training workshops paired with solar installations that are easily maintained by the community. They have designed a multitude of prototypes including PV controllers, solar energy water heaters, solar kitchens, solar dryers and other appliances.

Unfortunately, CIES is limited by insufficient funding which is vital for further product testing and improvement, as well as for planning a potential international market presence to meet the growing global demand for solar-powered solutions and appliances.

Working closely with CIES is the local NGO Cubasolar, which is run by local engineers, scientists and planners who have been very active in pushing for the advancement of renewable energy in Cuba. One of their major successes has been the creation of a countrywide network of experts in various sectors and they foster the cooperation and knowledge transfer with international actors in the field of solar energy. Cubasolar publishes a quarterly magazine, "Energ?a y Tu", featuring articles about research, projects, and initiatives in the field of renewable energy.

For solar energy to have a long-term impact on Cuba"s energy demand and production, projects must expand beyond off-grid usage. The focus should shift toward urban applications of solar systems and the further development of solar-powered domestic appliances. Particularly the latter category offers Cuba a lot of potential to develop into a global actor, as the international demand for high-quality, affordable solar appliances is strong.

The element preventing Cuba from achieving that position is a financial one. Despite recent economic reforms, Cuba is still not a very attractive option for foreign direct investment, with or without the obstacles presented by the US embargo. Even if the embargo were to end soon, it doesn"t guarantee that international finance mechanisms will immediately be able to (or allowed to) proverbially take off.