

Solar Energy in Lebanon

Could Use a Little Push



Solar energy can be either thermal or photovoltaic. In Lebanon, solar thermal energy revolves mainly around solar water heaters (SWH). Lately, the Lebanese Center for Energy Conservation Project (LCECP) in association with the Ministry of Energy and the Lebanese Solar Energy Society (LSES), have performed a survey on solar thermal market in Lebanon (for reference, visit <http://www.lcecp.org.lb/files/solarsurveylist>). It appears that in 2008 there were around 32 suppliers and manufacturers competing in Lebanon, and that around 120,000 m² of solar collectors had been already installed (much less than in Cyprus or Jordan), with an average yearly growth of 20 percent.

Most of the installed solar collectors are of the thermo-siphon type, 69 percent of the closed type, and 31 percent of the open type. Flat plate collectors made up 82 percent of the installations, followed by a steady growth of the evacuated tubes with 18 percent of the total installations.

It is to be noted that 60 percent of the SWH are used by individuals in the residential sector. However, more recently, and thanks to UNDP and a

Swedish grant, solar collectors have been installed in governmental hospitals and dispensaries in the Bekaa, South Lebanon, and Dahiaa. Unlike the Maghreb countries and Europe, hotels and industrial applications make a small number.

There are no incentives from the Lebanese government, whereas in Syria US\$100 is reimbursed by the government for each installed SWH. Moreover, in Lebanon, the import of SWH is taxed: 5 percent on custom tax and 10 percent for VAT. In Cyprus and Spain, a law dictates that each new apartment or home has to install a SWH. Such a law does not exist in Lebanon. On the contrary, the placing of SWH on the roofs of the buildings is not even regulated.

The idea that a SWH is a home appliance should be promoted. Buying a SWH is much like buying a refrigerator. In addition, the installation should not require a specialized team; it should become a routine task that any plumber can install a SWH. A place for its location on the roof should be pre-planned too, as well as a place for the tank of cold water that feeds by simple gravity the SWH (figure 1). It should be

noted that the price of SWH, especially the vacuum-tubes type, has dropped significantly.

Unlike thermal solar energy, the generation of electricity from solar panels is still not widely used. As far as we know, there are no MW solar parks up till now in the Arab world. However, in Egypt, a solar thermal power plant of 150 MW, using concentrated photo-voltaic, is expected to open in Kuramat; Saudi Arabia is now deeply involved in solar projects. In Syria, a 1000-MW solar park is planned near Palmyra. There are small projects in the West bank and Gaza in occupied Palestine. In Lebanon, we have implemented few small projects, either purely solar (photo 2), or in the form of hybrid solar-wind systems.

We have 300 sunny days in Lebanon with a good solar radiation. The system is easily installed, and is almost





maintenance-free as there are no moving parts. Unfortunately, no feed in tariff laws exists, in order to connect to the grid, and, therefore, all applications are off grid, stand-alone type, requiring storing electricity in deep-cycle batteries.

Solar PVs are still costly: the cost per watt is around 4.5 to 6 US\$ per watt (including VAT), and you have to add the cost of controller, batteries, and inverter. The applications in our region are limited to residential use, when it can be used for a multitude of purposes to solar street lights, lighting the gardens, a billboard, a gasoline station at night, or for solar water pumping using DC pumps.

The risk of destroying the environment

and inducing climate changes is not taken into consideration. The current atmospheric concentration of CO₂ is 385 ppm, and so we need to reduce it to 350 ppm by 2050 in order to save the planet from global warming (please visit the website of IndyAct at : <http://www.350.org>). In addition, 20 percent of our energy should be from renewable energies (solar, wind, biomass, geothermal) by year 2020. We are far away from those targets and no serious plans to reach them are in sight. We are approaching the post-oil period as experts assume that oil will run out in just about 50 years, meaning that we should start preparing ahead.

A change in attitude at the citizen's level, as well as increased awareness

and measures at government level could be the first steps to start with. In view of the national debt, it is highly unlikely that our government will start giving subsidies or will do away with VAT and custom taxes on PVs imports.

The Lebanese are relying on local diesel generators to cover the average 8 hours per day of power outage. What a bad solution for combating global warming! This will inevitably change when one watt of solar electricity will be for one US\$, and when a feed in tariff law will become a reality. ■

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إن الطاقة الشمسية بنوعين إما حرارية أو فلتية ضوئية. في لبنان، تتمحور الطاقة الشمسية الحرارية حول سخانات المياه الشمسية (SWH). وفي مسح أجري العام: تبين أنه في ٢٠٠٨ كان في لبنان حوالي ٣٢ مزوداً ومستعماً يتنافسون فيما بينهم وأنه تم تركيب ما يقارب الـ ١٢٠.٠٠٠ م من لاقطات الطاقة الشمسية. في هذه المقالة، يعرض السيد شامل معكرون المعطيات المتوفرة عنده حول هذا القطاع في لبنان في مهمة تهدف التوعية وتوجيه الأنظار إلى خطوات خضراء تصب في مصلحة المواطن والوطن على حد سواء.