Solar air conditioners: Cooling with solar heat

Constant rise in fuel prices and increasing public awareness about the importance of preserving our natural resources have made everybody concerned with saving energy and alternate energy sources. In the face of these tough challenges Contra international is providing the Qatari market with a practical and affordable alternative to the conventional air conditioners.

Atlantic Solar Florida U.S.A. is introducing Solar Air Conditioners that could reduce electricity costs for residential and commercial customers by 70% to 80%, at an economically competitive level," said Basikni Basikini, Atlantic Solar general manager. He added "This would cut the growth of peak electric demand and ease the increasing pressures on generating capacity, transmission and distribution."

The technology used in Atlantic Solar air conditioners, which is a patented technology, reduces 70% to 80% of the work done by the compressor, and hence it reduces the power consumption by nearly 70%. It works by a combination of solar and electrical power sources. It absorbs solar energy to heat the inside medium by using vacuum solar collector. Heated medium, driven by a pump, goes to the compressor of the air-conditioner, which consumes most of the electricity. The heated medium will release the compressor to save electricity. The higher temperature the medium makes for the higher Coefficient of Performance (COP). The production of the solar air conditioning units is done in two factories, one in California and the other in Florida. Basikini pointed out that: "This technology used in Atlantic Solar's solar air-conditioners is American and are designed according to the Carnot's cycle, combining solar and heat pump technology, to procure a Saving Energy & Green Product."

While the technology is American, the compressors used in solar air conditioning are Hitachi. "We use the same brands used in standard air conditioners. Moreover, we offer a five-year warranty on the compressor and a 15-year warranty on the solar efficiency of the unit," Basikini said. He further explained that solar air conditioner units don't need any special maintenance other than the maintenance that might be needed by any standard air conditioner.

Aimed whether the cooling quality of the solar air conditioners is different than standard air conditioners, Basikini said "We use the same refrigerant used in conventional air conditioners, which characteristics don't change according to the power source, so the cooling efficiency is the same."

He pointed out that "this technology is private, but the fact that these solar air conditioners are not generating electricity and using it to power air conditioners, but combining electrical and solar power sources, makes it affordable. The initial cost of 3.5 tons solar air conditioner for instance is nearly the same of a 3.5 tons standard air conditioner of any common brand. Moreover, the running cost of the solar air conditioner is much less due to the saving in power, which allows its users to save the electricity cost immediately to over the cost of the unit."

Beakkini said. He explained that same unit can be used for heating as well as cooling, because Atlantic solar air conditioner systems will produce needed hot-water for others in home or business units in the future, as it is a multifunction machine.

Ideal applications for these solar air conditioners are in residential or industrial buildings. "Currently, we are supplying solar air conditioners and solar offices with our units," Basikini said. He pointed out that in sites usually there is no power supply and a stand by generator is used as a source of electricity. The usage of the solar air conditioner will allow usage of a much smaller generator for lighting and construction purposes only, which consumes much less energy. Contra international first introduced solar air conditioner units to the Qatari market in Project Qatar Exhibition last April. Since then the company has confirmed sales for over 12,000 units. Some of these units are for clients in the UAE, Saudi Arabia and other neighboring countries. The company has many reputable clients in Qatar including Qatar Foundation, and Construction Development Company (CDC). Basikini said that Atlantic Solar Florida works with big companies only, a client is only if it's an individual buying one unit.

Beakkini revealed that the company has new units now that allow application of central air-conditioning and not only split air conditioners. He added that the company could look into turning the air conditioners to be 100% independent from electric source through using a photovoltaic cell to convert solar energy into electricity, but the regulation of these cells are expensive which would decrease the prices of the solar air conditioner units. With the rise in fuel prices all over the world and the increased pressure on the environment, there is no better time to use alternative energy sources.