

SHOULD I INSTALL A SOLAR OR WIND SYSTEM ON MY EAST END HOME?

Written by Steven B. Larchuk, Grapetree Area Property Association, Inc. ("GAPOA") President and expert on Solar and Wind systems. Although Mr. Larchuk is CEO of Caribbean Energy Opportunities, LLC, his company does not do residential installations. Therefore this information is provided only as a public service and not for any other purpose. Mr. Larchuk has a solar hot water heater, wind turbine and photovoltaic system at his home in North Grapetree Bay. His WAPA bill is about zero.

Answer – Yes You Should.

WAPA rates have increased 500% in the past nine years. As this is written the utility rate for residential service is 51 cents per kWh. This is the highest rate in the United States. As a result, money devoted to energy efficiency and electricity generation outperforms just about any other investment.

Energy Efficiency First

Just about any home can reduce its electricity consumption by 10% without a substantial investment in energy generation technology.

If you have not already done so, take an honest look at your home and ask if you have done the obvious things to reduce consumption. Money devoted to LED replacement light bulbs, new energy efficient refrigerators, new energy efficient air conditioners, elimination of unnecessary appliances, replacement of old pool and cistern pumps, installation of radiant barriers, radiant barrier window films, electric timers on an existing electric hot water tank. All of these will provide the swiftest 100% return on investment.

Some of these items qualify for tax credits.

Quality Electric is a good place to start for an energy efficiency survey.

Solar Hot Water Heater?

At a cost of \$3,000 or so you can install a solar hot water heater. As we have no freeze issue in the USVI the solar hot water systems installed here tend to be fairly simple. The electricity savings can be 10% to 25%, depending upon hot water usage. Another alternative is point if use electric hot water heaters. These are electric, yes, but are located right at the sink or shower where you use hot water and thus only turn on when you turn on the hot water tap. This assures instant hot water – so you do not have to

wait for hot water to make it from the far side of the house where the stored hot water tank is located. This saves your precious water from going down the drain.

There are multiple vendors who will sell and install solar hot water heaters. The VI Energy Office may also still have funds available for a \$1,000 cash rebate for USVI residents. Ask your vendor. You can take a 30% tax credit for the cost of your system.

Photovoltaic?

During the past three years the cost of photovoltaic (sometimes called solar electric or "PV") panels has dropped by nearly two thirds. As a result, the installation costs have also dropped dramatically. These systems have no moving parts, are silent, and are generally inoffensive to your neighbors.

The USVI has a very nice net metering system which means WAPA essentially functions as your battery by taking your excess electricity from your PV system during the day and gives you full credit for it against what you "buy" from WAPA at night.

Example:

Your monthly WAPA bill averages \$500. That is \$6,000 per year.

This translates to about 13,000 kilowatt hours (kWh) per year.

To generate this amount of electricity from a roof or ground mounted PV system would require about 8.5 kilowatts (KW).

The cost of such a system depends upon the complexity of your installation, orientation to South, and other factors. But you can expect a local vendor to install a complete system for approximately \$4.50 to \$6.50 per watt. In other words, \$38,250 to \$55,250. The average would be about \$46,750.

You would qualify for a 30% tax credit against your US Federal or VI income tax. So you would recover \$14,025 in tax savings. So your net cost drops to \$32,725. This is true even if this is not your principal residence.

Your annual WAPA savings would be \$6,000 per year at current rates. Which means your \$32,725 net investment is returning 18% per year in TAX FREE value. How does that compare to your other investments?

How About Wind Systems?

Unless you have a very large lot, located on a ridge or with an unimpeded view to the East or Southeast, wind turbines are not the best option.

Your author has one, installed in 2009. If I had it to do over again I would go all solar instead.

Wind turbines are mechanical and thus have to be maintained. The poles are expensive and upset neighbors. Depending upon the technology used, the systems can be almost silent, or make enough noise to be noticeable. Last, they are more vulnerable to hurricanes.

Do I Need Batteries?

Without batteries your system automatically shuts down when WAPA goes down. In other words, without a battery system you will still need your fossil fuel generator to provide electricity when WAPA power is unavailable. With batteries your PV or wind system can keep going when WAPA is down. Batteries will add about 30% to your system cost.

More Information?

Your author will be happy to provide free guidance to GAPOA members.

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WAPA is not useful for information. The VI Energy Office website has some information but tends to be lagging in current price and technology options.

Various vendors on Island can provide their insights. It is strongly recommended that you secure at least two (three are better) bids. Insist on USA, Germany or Japan manufactured PV panels and either USA or Germany manufactured inverters. They cost a bit more but are worth it. Stay away from China products – please stay away.

If you have room on the ground to install a system, that is where it should go. Your installer will want to put it on the roof – and will insist that it will stand up to hurricanes – but that is a distant second choice. If you do put it on the ground make sure to fence it to protect animals, children, and discourage theft.

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