

# Solar systems power home appliances

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In the last few months, we here at Alternative Power Systems, Inc. have received numerous

phone calls concerning the cost and savings associated with grid-tied, net-metering or utility interactive solar systems.

These systems are designed to feed excess power back into a

utility grid.

The inverters are designed to connect to the utility power only when there is voltage to the inverter.

When the utility power goes down, the inverter disconnects and will not put out any voltage to the grid.

Utility companies do not want any power being fed back when the power is down to the utility grid to avoid electrocution.

The biggest misconception with a grid-tied system is that the power remains on when the utility power goes out.

Unless a battery backup is added to the grid-tied system, you will be without power just like everyone else.

Adding battery backup can be an involved process. The first step is to determine your goals and needs.

In most cases, only a few circuits will be energized while the utility power is out.

Once you have decided what

lights and appliances you want to run, then you have to decide how long you want to run them when the utility power is interrupted. A battery bank is like a tank of water. If you are putting a gallon in and taking two gallons out you will surely run out of water. To get the production you need, proper sizing is necessary.

When the solar array is not providing enough to supply the demand, the batteries will supply the power. Properly sizing the battery bank will give you power when the utility power is down and it is cloudy. The question becomes how long you will need to have power.

In most cases one to three days is a good goal. In the winter, it can be cloudy for up to seven days in a row. Even though the solar array will produce a limited amount when it is cloudy, it will not be anywhere near the amount produced when the sun is out.

Another addition to consider is a stand-by generator. When

the utility power goes down the stand-by generator will start and supply power to the whole house. Proper sizing of a stand-by generator is also necessary. It must be big enough to run all that you require.

Adding a generator to a solar system that has battery backup would allow the batteries to be charged and larger loads to be fed at the same time.

Many times the generator is under sized for the demand required. The battery bank is too small to provide the longevity needed to sustain the power needs.

Cost is always the issue with these systems. But if you need a system of this nature and it works when you need it most, cost is long forgotten. Next week, I will go into the different equipment available to make this all work.

*Stewart Somerville represents Alternative Power Systems, Inc. in Cedar City.*