

Solar Energy Can Be a Health Hazard

by Andrew Eriksen

Generating electricity from the sun and the wind is gaining popularity. In many parts of the world, governments encourage their citizens, businesses and schools to put solar panels on their roofs, and wind farms are sprouting up in many places.

Some of these technologies are unfortunately a health hazard to people who have electromagnetic hypersensitivity (EHS). These are people who get sick from electromagnetic radiation in very small amounts, such as that which comes from cell phones, computers and other electronic appliances.

There are studies that suggest that radiation of the type coming from solar electric systems (some of which have been dubbed “dirty power”) may have long-term health effects on healthy people as well. In the following, we will look at the problems with solar and wind generators, and how one can use them without compromising health.

Solar systems

Putting solar panels on the roof of one’s home, business or school is a good way to provide an alternative to polluting conventional power plants. However, people with electromagnetic hypersensitivity may not even be able to enter or be around such a building. Since some of the symptoms of this syndrome are common and non-specific, such as headaches and restlessness, a person using the building may not even know his or her symptoms are caused by the solar system.

Modern solar systems use components that radiate high levels of radio frequency electromagnetic radiation, which can cause the symptoms. The main problem is the inverter, which is a device that takes the electricity from the solar panels and turns it into alternating current (AC) and puts it out on the electrical grid. The inverter generates radio frequency radiation, which can easily be heard on an AM radio, but not picked up by a traditional gaussmeter. The wires connected to the inverter act as antennas, so the radiation may be picked up hundreds of feet away from the inverter. There have been cases where a solar-electric system became a problem for an electrically sensitive person living next door.

There may be other troublesome components in a solar system as well, especially in systems that use batteries. These systems may use the batteries to power the building during a power outage, though in most cases they are used when the house is in a remote rural area where there is no electrical service.

Today's battery systems usually use technologies that are more efficient at charging the batteries, but which also emit radio-frequency radiation. These technologies are called Pulse-Width-Modulation (PWM), Maximum Power Point Tracking (MPPT) and other names.

It is possible to use solar-electric systems without this radiation, but they are not suitable for most people. One will have to do like the off-grid pioneers did in the 1970s and 1980s, using 12 volt DC electricity with no inverter, and just a simple charge controller. There are people doing it (including this author), but it is a significant lifestyle change. Hopefully future generations of inverter design will be better, though it will be very difficult to fully remove this radiation.

Wind generators

Harvesting electricity from the wind is typically only practical for people living in rural areas. A wind system takes up a lot of space and requires more maintenance than a solar system. They are also noisy, which can be bothersome to sensitive people. A few models can be mounted on a house, which is a very bad idea as it will then magnify the vibrational noise.

Almost all residential-size windmills use an inverter to produce AC electricity. If connected directly to the grid and placed far from the house (a minimum of 100 yards) it may be okay for an electrically sensitive person, but this has not been tested. Even if the wind generator is placed far from the house, it could be a problem if it is connected to the house wiring, as the wire will act as an antenna for the inverter.

For remote houses with DC battery systems, it may be doable, but there are a series of untested issues regarding radiation from rectifiers, voltage regulators and transformers. This author is not aware of any EHS person who has tried it.

Wind farms are very different from residential-size wind generators. They typically do not use inverters and are generally also placed well away from any residence. They are also quieter, as the blades rotate at a much lower speed than the small models do.

There could be an issue with ground currents from the towers, but it is unlikely to be a major problem, especially when not living close to them.

Solar hot water systems

A solar hot water system takes the heat of the sun and warms up bath water and sometimes even heats up a house. These systems usually have a solar collector on

the roof that heats up a liquid, which is then pumped to a storage tank for later use. The main issue with these systems is the pump, which can be a problem for people who are electrically sensitive. It is a small pump, and may be no more bothersome than a refrigerator. If placed in a separate building or in a corner of a larger home, it may be just fine. Some systems have the pump run on DC electricity directly from a solar panel, which is not an improvement to using a regular AC pump. Some DC pumps are actually worse.

It may be possible to get solar heated water without any electricity at all. These systems are called “thermosiphon” types, and use a storage tank mounted on the roof, with a solar collector placed below the tank. These systems are especially popular in third-world countries and Australia, but are best suited for climates with only mild frosts.

What to do?

It is not easy being green and sensitive. Many “green” technologies are not safe for people who are chemically or electrically sensitive. Some examples beyond this article are hybrid cars and most low-energy light bulbs. So what is a green-minded sensitive person to do? Fortunately, there are safe options, which are simple and with no up-front investments.

Some electrical utilities are investing in large solar plants and wind farms, even in states that traditionally have not been friendly towards the environment. Some of these utilities may offer their customers their green electricity at a premium price, to support the construction of more solar and wind plants. In some states, there is no longer a monopoly on selling electricity, and there are now companies offering electricity generated with renewable energy.

In areas where there is no choice, one could still purchase solar credits from nationwide vendors. They will generate the electricity from a plant somewhere in the country – it doesn’t really matter where it is anyway. Just beware that some of these vendors are unscrupulously selling electricity from existing plants, especially using hydro power, so the premium does not go to any new solar or wind plants, but directly into their pockets.

Of course, buying green electricity from the power grid does not give one the same bragging rights as a roof filled with solar panels, but it all helps just the same.