

Pennsylvania Solar Energy Rebate On Hold: How Consumers Can Still Save Energy

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Last July Pennsylvania state officials announced the \$100 million consumer and small business solar energy rebate program -- part of a \$650 million Alternative Energy Investment Fund -- when it was signed into law. Recently the residential solar energy tax rebate program was put off. Given the current credit market conditions, it was deemed a "bad time" to float the government bonds needed to fund the \$100 million program. *"Anything that is tied to Commonwealth Financing Authority ... bond issue is on hold because of the Wall Street financial meltdown,"* said John Nikoloff, a principal with Energy Resources Group of Harrisburg, who has been following the program. Much of the program, including a solar energy rebate that was promoted as paying for up to 35 percent of the cost of installation of solar panels, was to be funded through Pennsylvania bond issue.

While state officials are trying to get the rebate program running again, residents can examine a newly available renewable energy source. The source, described by Michael Grunwald in the January 12, 2009 Time magazine article, "Wasting Our Watts", is perfectly clean, remarkably cheap, surprisingly abundant, and immediately available. This renewable energy source has astounding potential to reduce the carbon emissions that threaten our planet, the dependence on foreign oil that threatens our security and the energy costs that threaten our wallets. Unlike coal and petroleum, it doesn't pollute. As opposed to solar and wind, it doesn't depend on the weather. It is superior to ethanol because it would not accelerate deforestation or inflate food prices, and unlike nuclear plants, it doesn't raise uncomfortable questions about meltdowns, terrorist attacks, or radioactive waste storage and it doesn't take a decade to build. It is already proven to be workable, scalable and cost effective and we don't need to import it.

This source is energy efficient which has an easy concept: waste less energy. Before building new sources of energy we need to look into our homes and make sure the energy we are already using is not being wasted. We need to learn how to squeeze all the energy out of an electron before generating new electrons. There are a number of methods that homeowners can apply to reduce their energy consumption.

The easiest step is to replace incandescent bulbs with compact fluorescents. Although the latter bulbs are more expensive, they pay for themselves in energy savings. If every American home replaced just one light bulb with an ENERGY STAR qualified bulb, we would save enough energy to light more than 3 million homes for a year, more than \$600 million in annual energy costs, and prevent greenhouse gases equivalent to the emissions of more than 800,000 cars.

Another step would be to install a programmable thermostat to stop wasting energy when one is not home. A programmable thermostat can save up to 33% on utility if used as directed according to industry experts. One can set it up to adjust the temperature when away from home or asleep, when optimum comfort is not necessary, and the HVAC equipment runs less. Plus, the heating or cooling comes back to a comfortable level automatically before the individual comes home or wakes up.

A third step that could maximize savings is eliminating leaks in a house by sealing and caulking windows, doors, and insulating pipes and ducts. Many air leaks and drafts are easy to find because they are easy to feel — like those around windows and doors. But holes hidden in attics, basements, and crawlspaces are usually bigger problems. Sealing these leaks with caulk, spray foam, or weather stripping will have a great impact on improving comfort and reducing utility bills. One way to find the hidden leaks is to conduct an energy audit where a technical professional can find the location of those leaks by using infra red cameras or other technologies.

The same practice trends can be applied on a larger scale by building owners, whose energy spending performances can have larger and more effective impact on energy consumption. In order to increase the useful life of systems and equipment reliability, the landlords can follow a number of practices. Effective and efficient operation and maintenance

of lighting, controls and equipment are a must in today's energy usage landscape which leads to sustainable development.

A regular inspection of all equipment and controls will ensure they are functioning as designed. Periodically walking through the building and comparing the thermostat setting with a hand-held digital thermometer ascertains that the thermostat settings equal actual space temperature is important. Bringing in the least amount of outside air necessary to maintain proper air quality by adjusting the dampers, while making sure to stay within codes requirements, reduces the load on the cooling and heating equipment. Installing motion sensors, that turn lights on when janitors are cleaning and automatically turn them off when the floor is vacant, eliminates the unnecessary waste of watts. If janitors clean during the day instead of the night further energy can be saved.

Tenants and other building occupants directly impact the three major energy consumption variables in office buildings: plug load, HVAC and lighting. Since many leases require tenants to pay their share of utilities, getting tenants on board with energy savings initiatives should be easy. With U.S. companies alone, more than \$1 billion a year is wasted on electricity for computer monitors that are left on when they should be off. This wasting of energy can be avoided by installing power management software for computer monitors and CPU/Hard Drives. These devices allow monitors and CPUs to enter "sleep" mode when not in use. Locating work stations that require high illumination adjacent to windows decreases the demand for light usage. Cleaning windows and skylights allow more natural daylight to illuminate work areas.

Lighting may represent as much as 30 percent of a building's energy usage so changes to lighting can mean significant energy savings. Many buildings are just too bright, which means that many bulbs, fixtures, and lamps can be removed. If de-lamping opportunities exist, the owner will be able to go from 4 lamps in perimeter down to 2 lamps, and from 4 lamps to 3 lamps in interior spaces. Unused ballasts can also be disconnected. During construction, some building lights may be hard-wired to the "on" position, meaning that EMS-programmed lighting sweeps will not turn off the lights. If this is the case, make the adjustment so it is not hard-wired on in a permanent position. Some building managers recommend staying at work late one night a month, or driving past the building after hours to ensure that the programmed

lighting sweep actually takes place. Installing occupancy sensors will automatically turn off lights when physical movement stops. This strategy may be especially effective in spaces used infrequently, such as storerooms and conference rooms. Occupancy sensors work not just for lights but also for HVAC controls.

Building controls represent another opportunity for energy efficiency improvements. Tenants typically feel that they should have access to the thermostats since they are paying for the energy, but it is not uncommon for people to adjust thermostats too wildly. If they feel cold, they will move the thermostat from 50° to 72°. Their goal is to change the temperature quickly. It is a good practice to limit access to the thermostat after talking to the tenants and making sure that the temperature of the rooms are comfortable. Moreover, setting the lowest amount of dehumidification when the building is unoccupied and raising the indoor thermostat setting during the cooling season is a recommended practice. Summer clothing is typically lighter, thereby requiring less AC to keep the tenants comfortable. Conversely winter clothing is heavier, thereby requiring less heat to keep the tenants comfortable.

Energy efficiency has the potential to slow the growth of the projected energy demand. This delay will provide time for officials to get their energy rebate programs and incentives in shape to face the energy challenges of the coming years. Plus, it grants time for scientists to improve on the efficiency of the renewable energy sources and to bring their costs down.