Benchmarking

Solar Power

http://voltaicsystems.com/blog/combining-non-matched-power-sources

Used a 6V 2W panel and a 10V 1.3W panel, connected in parallel using a modified 3-panel circuit box. The device charged was a completely drained V11 battery pack.

Means that it is ok to combine panels of different Voltages together as long as they are roughly similar and they don't fall outside of the specifications of the device you're charging. The Voltage of the combined panels drop to whatever the load requires to charge and the POWER output of both panels on their own is roughly additive.

Kinetic Power

Kinetic energy is power that is gained from motion, and this motion can involve vehicles, individuals, and other objects or organisms. Another way of generating green electricity is to use solar panels for electricity generation. Alternative power sources are an important part of meeting the energy needs of the future, because at some point fossil fuels will become scarce, and kinetic energy as renewable energy is clean and eco friendly. As time goes on these fuels and power resources will cost less than fossil fuels do, and they will be readily available as well. Generating green electricity does not have to be extremely expensive, and you can make solar panels for electricity generation instead of buying them to save money. Windmills use kinetic energy, and so do some hydro methods as well. This alternative power source has been used

through history, and it is becoming extremely popular again today. Renewable alternative energy sources are becoming more in demand, and many states and areas have laws in effect that allow you to sell any excess power generate to the utility company. Installing devices which will be generating green electricity can be a great idea, especially if you want to lower your utility costs or even eliminate them completely. A combination of methods can be used, including windmills, solar panels, water sources, and others to make your home very efficient and more environmentally friendly.

Nanofibers

Nanotechnology is providing new solutions and opportunities to ensure sustainable energy and environments for the future. Materials of nanofiberous morphology are attractive to solve numerous energy and environmental issues. Nanofibers can be effectively produced by electrospinning, which is a simple and low cost technique. In addition, electrospinning allows the production of nanofibers from various materials e.g. organics and inorganics in different configurations and assemblies. This is highly beneficial for energy devices, where inorganic materials especially metal oxides can be synthesized and electrospun, improving conducting and ceramic properties. Excitonic solar cells fabricated with aligned nanofiberous metal oxide electrodes provide higher solar–electric energy conversion efficiency, whereas fuel cells made with nanofiberous electrodes enable uniform dispersion of catalysts, and thus increase electrocatalytic activity to obtain higher chemical–electric energy conversion efficiency. The nanofibers used in filtration membranes for environmental remediation, minimize the pressure drop and provide better efficiency than conventional fiber mats. The large surface area-to-volume ratio of nanofiber membranes allows greater surface adsorption of contaminants from air and water, and increases the life-time of the filtration media. This review highlights the potential and application of electrospun nanofiberous materials for solving critical energy and environmental issue.

Friction

When surfaces in contact move relative to each other, the friction between the two surfaces converts kinetic energy into heat. This property can have dramatic consequences, as illustrated by the use of friction created by rubbing pieces of wood together to start a fire. Kinetic energy is converted to heat whenever motion with friction occurs, for example when a viscous fluid is stirred. Another important consequence of many types of friction can be wear, which may lead to performance degradation and/or damage to components. Friction is a component of the science of tribology.

Friction is not itself a fundamental force but arises from fundamental electromagnetic forces between the charged particles constituting the two contacting surfaces. The complexity of these interactions makes the calculation of friction from first principles impossible and necessitates the use of empirical methods for analysis and the development of theory.