

Intro to Permaculture Energy Systems Permaculture Video Transcript

Music

In the site analysis portion of this class, we looked at the question of “Where am I?” We learned that each region has its own specific set of conditions that we analyze and design for. When we are designing for the production of electricity on a Permaculture site, we are asking that same question. What is the renewable energy source that can best be utilized to satisfy electricity needs?

The very first thing to do is reduce the need to consume electricity. The goal is to create passive systems that require less energy just because of their design. This is a lot of what we looked at in regards to housing, having good solar orientation and natural lighting to reduce heating, cooling, and lighting needs; planting trees around a structure to block out cold winds or shade the building in summer; growing fresh food all around you to reduce trips to the store and all the packaging involved. There are several of the Permaculture principles that we learned that apply to this concept: Apply Self-regulation and Accept Feedback, which means to voluntarily control your own consumption and live simply. Use and Value Renewable Resources and Services, which is a call to identify and develop regenerative systems. And Produce No Waste, which urges us to be frugal and careful with our use of resources.

The first thing to do is identify what renewable resource is in abundance in your area. The main ones are sun, wind, flowing water, and biomass. Some special places have geothermal energy available, but that’s quite uncommon.

The sun can provide both solar electricity through solar panels, as well as easy water heating. I believe that it’s a crime that we use coal, nuclear energy, and natural gas to heat water in desert climates where the sun shines throughout the year. In the nation of Israel, all new homes have been required to have solar hot water systems since the 1950’s, and 90 percent of them do to this day.

Wind energy has been used for a long time to pump water and provide electricity. The capacity for wind power is very site specific, as topography has a big influence on windy and sheltered locations. But there are many places where wind is nearly constant, often times over plains or on the coast, and with wind turbines, you can generate electricity day and night.

Electricity from flowing water is called hydroelectricity, and in Permaculture systems we’re looking towards “micro hydro” systems. This is where energy is produced from a vertical drop of water in a pipe, which creates pressure that can be converted to electricity. An amazing thing about running water is it goes 24 hours a day, 7 days a week.

There are a number of different ways that electricity can be produced from biomass, including combustion, gasification, pyrolysis and anaerobic digestion. Biomass can be woody plant material, agricultural wastes, animal manures, and human manures. When we apply the Permaculture principle of

“Produce No Waste,” we can see how waste can become energy. Biomass energy production is especially suited to farms, where there is often times a surplus of usable materials.

Decentralization is an important strategy for energy production in a Permaculture system, with alternative energy systems at the home or neighborhood scale. One reason for this is self-reliance: A network of many small independent energy systems is not vulnerable to power grid failure. Small-scale systems are not vulnerable to price fluctuations caused by far flung events beyond our control. Local energy generation causes us to live within our means, and utilize locally available resources.

It’s too easy to leave the light on when the coal-fired power plant or nuclear reactor is far, far away. But if you’ve got solar panels and the sun is shining, then blast the stereo, turn on the disco ball, and start making mixed drinks in the blender because you’re not wasting a thing!