RENEWABLE ENERGY SYSTEM

Planning for a home renewable energy system is a process that includes analyzing your existing electricity use, looking at local codes and requirements, deciding if you want to operate your system on or off of the electric grid, and understanding technology options you have for your site.

Maybe you are considering purchasing a renewable energy system to generate electricity at your home. Although it takes time and money to research, buy, and maintain a system, many people enjoy the independence they gain and the knowledge that their actions are helping the environment.

A renewable energy system can be used to supply some or all of your electricity needs, using technologies like:

Small solar electric systems

Small wind electric systems

Microhydropower systems

Small hybrid electric systems (solar and wind)

If you're designing a new home, work with the builder and your contractor to incorporate your small renewable energy system into your whole-house design, an approach for building an energy-efficient home.

Analyzing Your Electricity Loads

Calculating your electricity needs is the first step in the process of investigating renewable energy systems for your home or small business. A thorough examination of your electricity needs helps you determine the following:

The size (and therefore, cost) of the system you will need

How your energy needs fluctuate throughout the day and over the year

Measures you can take to reduce your electricity use.

Conducting a load analysis involves recording the wattage and average daily use of all of the electrical devices that are plugged into your central power source such as refrigerators, lights, televisions, and power tools. Some loads, like your refrigerator, use electricity all the time, while others, like power tools, use electricity intermittently. Loads that use electricity intermittently are often referred to as selectable loads. If you are willing to use your selectable loads only when you have extra power available, you may be able to install a smaller renewable energy system.

To determine your total electricity consumption:

Multiply the wattage of each appliance by the number of hours it is used each day (be sure to take seasonal variations into account). Some appliances do not give the wattage, so you may have to calculate the wattage by multiplying the amperes times the volts.Generally, power use data can be found on a sticker, metal plate, or cord attached to the appliance.

Record the time(s) of day the load runs for all selectable loads.

Considering energy efficiency measures in your home before you buy your renewable energy system will reduce your electricity use and allow you to buy a smaller and less expensive system. For information about determining the overall energy efficiency of your home, see energy assessments.To begin choosing the right small renewable electric system for your home, you will need a basic understanding of how each technology works, as well as:

Renewable energy resource availability

Economics and costs

System siting

System sizing

Codes and regulations

Installation and maintenance considerations.

Remember that all of these technologies can be used by themselves, combined, or used in conjunction with a fossil fuel system. When these technologies are combined or used with a fossil fuel generator, the result is a hybrid system.

Technology options include solar, wind, microhydropower, and hybrid electric systems (solar and wind).

Small solar electric systems -- A small solar electric or photovoltaic system can be a reliable and pollution-free producer of electricity for your home or office. Small photovoltaics systems also provide a cost-effective power supply in locations where it is expensive or impossible to send electricity through conventional power lines.

Small wind electric systems -- Small wind electric systems are one of the most cost-effective home-based renewable energy systems. They can also be used for a variety of other applications, including water pumping on farms and ranches.

Microhydropower systems -- Microhydropower systems usually generate up to 100 kilowatts of electricity, though a 10-kilowatt system can generally provide enough power for a large home, small resort, or a hobby farm.

Small “hybrid” solar and wind electric systems -- Because the peak operating times for wind and solar systems occur at different times of the day and year, hybrid systems are more likely to produce power when you need it.

**NUH MEHMET BALDÖKTÜ HİGH SCHOOL SCHOOL TEAM**