

Dear Westmoreland Residents,

In preparation for Master Plan work, the Planning Board would like to share some information with you. This letter is about photovoltaic or solar energy.

Solar energy uses a renewable energy source--the sun--and provides many benefits for individuals and the community. It improves environmental quality by reducing carbon emissions and air pollution, saves money on energy costs, and improves electric grid resilience during peak demand and during other stresses to the system.

The main types of solar installations in New Hampshire are grid-tied, off-grid, and hybrid:

- **Grid-tied:** The most popular type of solar installation in New Hampshire, grid-tied systems connect to the public utility grid. This allows the property to use solar power during the day and rely on the grid at night or to produce power to feed to the grid. When the system produces more power than the owner uses, the excess is sent back to the grid, earning the owner credits. These credits can be used to offset future power consumption.
- **Off-grid:** In an off-grid system, the system is not connected to the grid. Instead, batteries store solar power generated during the day for use at night. Off-grid systems and the batteries where they store electricity must be much larger compared to grid-tied systems, as they serve as the sole source of power.
- **Hybrid:** Hybrid systems offer a unique combination of power generation and storage. Power comes from the batteries and excess is fed to the grid. However, if the batteries are low, power can come from the grid.

Solar panels can be mounted in a variety of ways, including on roofs, on the ground, or as a floating system. The type of panel used can also affect the system's efficiency and power capacity. Monocrystalline panels are generally more efficient and have a higher power capacity than polycrystalline panels.

There are also types of system usage of solar including residential, commercial/agricultural, municipal, community, and utility grade. Generally, the size of the system is larger in each successive system listed below.

- **Residential solar** is a system designed to be used by the homeowner. Some systems produce just a portion of needed energy; others may produce excess energy which goes back to the grid if it is grid connected. Usage varies by household but average monthly NH household usage is 901 kwh. Depending upon the panel and weather conditions, one solar panel can produce 60 kwh monthly in NH.
- **Commercial or Agricultural solar** is used for on-site needs to run machinery, shops, or other uses on the site. This can be home occupations or businesses, a farm, or commercial businesses. These systems can be all sizes. For instance, a small shop needs a smaller solar panel system than a larger entity which may have multiple equipment with high

energy needs. So the size of the system is based upon the energy needs of the use on that particular site. Some communities allow commercial systems to be a percentage larger than just what is needed on site, allowing excess to be fed to the grid for credits as well as providing for on-site growth.

- Municipal solar is a system placed on one or more municipal sites to cover the use of those public entities. It is similar to commercial solar but the benefit is to the municipality.
- Community solar is a system that generates power for community members who subscribe to or purchase shares (partial ownership) in the system. This could be a benefit to residents whose own property isn't suited for solar or who could not afford their own system.
- Utility solar is a large solar installation designed to feed power directly to the electric grid. These huge solar installations are usually built by developers who sign long-term contracts with the utility companies in their areas. The power is sold at wholesale prices and sent along transmission lines to be distributed to customers. In NH, a solar installation that produces 1 megawatt of power takes 4 to 8 acres. These installations need to be near 3-phase power lines. In Westmoreland currently, the only 3-phase line runs along Spofford Road to Rt 63 to Partridge Brook Road to Maplewood.

Our master plan committee will be exploring how residents feel about the different types of systems, what you think should be encouraged in town, and what you feel is undesirable. The planning board is also interested in what concerns, if any, you would have about a solar installation near your property. An informational meeting which will include alternative energy discussion will be held November 9, 9:30 to 11 AM at the Westmoreland School. A master plan survey will be coming out in January.