



## Opinion regarding interpretation of language in the Zoning Bylaw of Shutesbury SECTION 8.10, GROUND-MOUNTED SOLAR ELECTRIC INSTALLATIONS

### Zoning Board of Appeals

#### Background

In SECTION 8.10, GROUND-MOUNTED SOLAR ELECTRIC INSTALLATIONS, specifically section 8.10-2 Applicability, contains the language: “This Section 8.10 applies to Large- Scale and Small-Scale Ground-Mounted Solar Electric Installations which are accessory to an existing residential or non-residential use which generate electricity principally used by such residential or non-residential use are permitted as of right, do not need to comply with this section, but require a Site Plan Review from the Zoning Board of Appeals, as well as a building permit, and must comply with all other applicable provisions of the Town of Shutesbury Zoning Bylaw.”

The specific language “...accessory to an existing residential or non-residential use which generate electricity principally used by such residential or non-residential use...” can be interpreted a number of ways. The ZBA has decided to interpret it as described in this document.

#### The Problem

Electricity can be generated by a variety of means, and transmitted to the point of consumption, where it is consumed by a variety of means. This system is referred to as “the grid”. Furthermore, various forms of generation can be well-matched or ill-matched to the particular needs of the delivery system and consumption at any moment. A solar electric installation is designed to feed its power into the transmission system as it is generated. There are times when the solar electric system is producing less power than the residence requires, and times when it is producing more than is needed. It is possible in some installations to first feed what is generated to the residence, and what is excess into the grid. In other systems, the power is fed directly into the grid. To assess whether the electricity generated by a solar installation is “principally used by such residential or non-residential use” is therefore not clear.

The generation capability of a solar electric installation varies according to the amount of light falling on it, the angle of that illumination, and whether the panels are shadowed and clear of snow and ice. The amount of light is variable depending on the time of day, cloud cover, and season.

The consumption by the residence depends on the use at any particular moment, time of day, outdoor temperature, whether air-conditioning is present, whether cooking, and so on.

It can be easily seen that there would be times when the solar electric system produces more electricity than the residence requires and times when it would produce less.

Because of this, installers perform an audit where they calculate the expected annual electrical power to be generated by the solar electrical system and calculate the annual electrical power to be consumed by the residence.



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**The Interpretation**

The opinion of the Shutesbury Zoning Board of Appeals is that the “Calculated Annual Production of Power from the Solar Electric Installation must equal no more than twice the Calculated Annual Consumption of Power by the associated Residential or Non-Residential use” in order to meet the requirement that the solar generated power be principally consumed by the associated residential or non-residential use. This test shall be applied in order to determine whether “principally used by” in 8.9-2 is true.

Voted to accept unanimously on \_\_\_\_\_.

ZBA Chairman \_\_\_\_\_, DATE \_\_\_\_\_