



## TOWN OF BARRE

Municipal Bldg.  
Lower Websterville, VT 05678  
802/479-2595

- Planning Commission
- Development Review Board
- Zoning Administrator



**CERTIFIED MAIL**

March 17, 2016

TO: Planning Commissions of the following:  
(or Clerk of the municipality)

City of Barre, 6 North Main Street, Barre, VT 05641  
Town of Williamstown, P.O. Box 646, Williamstown, VT 05679  
Town of Berlin, 108 Shed Road, Berlin, VT 05602  
Town of East Montpelier, P.O. Box 157, East Montpelier, VT 05651  
Town of Plainfield, P.O. Box 217, Plainfield, VT 05667  
Town of Washington, 2895 Vt. Rt. 110, Washington, VT 05675  
Town of Orange, P.O. Box 233, East Barre, VT 05649

Executive Director, Central Vermont Regional Planning Commission, 29 Main Street, Suite 4, Montpelier, VT 05602

Commissioner, Department of Housing and Community Affairs, 1 National Life Drive, Davis Building, 6<sup>th</sup> floor, Montpelier, VT 05620-0501

FROM: The Town of Barre, Planning Commission

Enclosed please find a copy of proposed amendments to chapter 8 (energy) section 8.5 (renewable energy) of the Town of Barre Municipal Plan. Also please be advised that the Town of Barre Planning Commission will hold a Public Hearing on these amendments in accordance to VSA 24 § 4384 on Wednesday, April 20, 2016 at 7:00 p.m. in the Selectboard meeting room at the Town of Barre Municipal Building 149 Websterville Road, Barre, VT.

This Plan has been amended under the requirements of VSA 24 § 4384. The plan as amended makes no significant changes that would alter the plan being consistent with the goals of VSA 24 § 4302.

We encourage all of the above parties to submit comments or attend the public hearing.

Respectfully,

Cedric Sanborn  
Planning Commission, Chair



## Report

The Town of Barre, like many other Vermont communities, has struggled to find the right balance between supporting renewable energy and protecting our residents and the valuable assets of our community. As stated in the first line of the Town plan under section 8.5, Barre Town continues to support renewable energy. However, The Town of Barre has seen a significant spike in the development of solar generation plants and while solar is a very important contributor to renewable energy, it does not come without impact. As a result of this new found interest in the Town of Barre for solar development, the Planning Commission is considering changes to the renewable energy section (8.5) of the Town Plan to allow for better management and siting of solar facilities.

Proposed changes to section 8.5 include:

1. Support renewable energy projects as long as they represent orderly development
2. To clarify the plans position that the extension of 3-phase power into more rural areas to accommodate renewable energy is a negative impact with regard to aesthetics.
3. That the most appropriate location for solar arrays is on roof-tops and existing impervious surfaces. Also to encourage the use of existing topography and vegetation to help mitigate views of solar arrays and to avoid the use of agricultural lands for solar development.
4. Adds a good neighbor policy so that a landowner developing solar doesn't mitigate their own impacts by placing them on a neighbor.
5. Finally creates siting requirements for various size solar projects.

Upon review of all of the goals set forth in VSA 24 § 4302, the Barre Town Planning Commission finds that the proposed amendments and the plan as a whole are still consistent with said goals.



## **8.5 RENEWABLE ENERGY**

In general the Town of Barre supports the use of renewable energy systems, to the extent that it does not burden the town with a disproportionate share of the State's renewable energy goals and provided that they fit into the goals of the Town Plan, taking into account noise, scenic vistas, location, negative impacts on residents, and represents an orderly development of renewable energy systems.

Renewable energy sources are represented by wind, solar, wood, geothermal and hydro. While renewables represent a chance to move away from fossil fuel sources, they are not without their own negatives such as; aesthetics, noise, cost, reliability, and availability.

Extending 3-phase power lines, into the more rural areas of the town to accommodate renewable energy sources would be considered a negative attribute in terms of aesthetics.

### **Wind Turbines**

Wind turbines are relatively expensive, can be high maintenance, have siting issues (works best at higher elevations, and on ridgelines), may cause noise issues, moving shadows, etc. with adjacent property owners, may negatively affect property values, and of course only works when there is sufficient wind speed. Aesthetics are a major concern.

- As a result of the factors listed above, full size industrial wind turbines are not a good fit for the Town and should not be allowed. Small to mid-size turbines, such as the one currently located on property owned by Rock of Ages, also have some of the same potential impacts and should only be allowed on a case by case basis if siting criteria takes into account all the potential negative effects and setbacks.
- Set back requirements should be established for wind turbines, so that blade and tower failures do not impact adjacent properties.

### **Solar Energy**

Solar energy is represented by both solar hot water heating systems (domestic hot water), and solar electricity (photovoltaics - PV). The most appropriate location for solar arrays is roof tops or existing impervious surfaces. Any new solar array should utilize existing topography, development, or vegetation on site to break up the mass of the arrays. Removal of productive agricultural lands from agricultural use to being developed for solar "farms" is to be avoided. Lot coverage for solar panels is defined as the area encompassed by the panels when viewed from above.

### **Solar Hot Water**

Solar hot water systems require minimal space and can be located on roofs or ground mounted. Solar arrays need full sun and to be pointed south for the best performance. Essentially all of the solar heat generated is stored in a hot water pre-heater tank. Payback on the systems is fairly short term given that there are both state and federal rebates/incentives available. These systems would also be appropriate for heating in ground pools and could be located all zones. Solar hot water systems are subject to setback requirements (same as any accessory building). Roof mounted arrays are subject to building height requirements and need to be sensitive to neighborhood aesthetics.

### **Photovoltaics**

PV requires a much larger array of panels and will have a more visual impact on surrounding properties. Residential PV systems are more expensive than hot water and even with incentives, payback can be up to 20 years. As with solar hot water systems, can be roof mounted or ground mounted.

- Ground mounted systems should be subject to the same property line set back requirements as other structures.

The Town of Barre supports a "good neighbor policy". The design and siting of a solar array should be done in such a manner that the array creates no greater burden on neighboring property owners or public infrastructure than it does on the property on which it is sited. As an example, a landowner may not site an array on his or her property in a location calculated to diminish the visual impact of the array from his or her residence or business, but place the array immediately within their neighbor's or the public's viewshed. Locating a solar array in a manner designed to reduce impacts on neighbors, or public viewsheds constitutes reasonable mitigation.

Lands adjacent to a solar development can be developed in conformance with existing Town and State regulations.

Conflicts about the use of solar panels may arise between property owners. Issues would include the sun reflection into adjacent homes, or blocking views. Or a neighbor, who plants a tree or trees, constructs a building or other structure that blocks the sun from reaching the panels.

A) Residential on-site systems (<15kW) should be sited to minimize aesthetic impacts, minimize reflection of light into an adjacent home, and avoiding blocking a neighbors view. Reasonable mitigation of a visual impact would be to construct the array using black or earth tone materials for any fence, panels, or structural supports. Avoiding bright metallic colors.

B) Larger systems or community systems (<150 kW) need to meet the conditions of the above referenced A needs to meet the setback requirements of Act 56. Additionally these would be located on an existing impervious surface or brownfield in an area that minimizes direct view from adjacent businesses, homes, and roads. These arrays are not permitted in "green fields" (actively used agricultural sites or sites with prime ag soils), or within any commercial zone. They should provide for an orderly development of solar within the Town and be compatible with adjacent property uses and be sited to preserve rural cultural aesthetics

C) Solar arrays (<500kW) are subject to all conditions A and B above. Additionally private development of these is prohibited in the Town's industrial park or within the Town's TIF District (should the Town designate one), or within any commercial zone. The above areas have all been created for purpose of boosting economic development and creating jobs and land available for this purpose in limited within the Town. Solar fields do not support these goals.

D) Commercial solar arrays larger than 500 kW would encompass a land mass greater than any other structure within Barre Town, and even with somewhat rolling topography cannot be screened or mitigated to blend into the Town's landscape and are therefore **prohibited**.

Mitigating the visual impact of solar arrays regardless of their size is an important siting factor. Plantings for screening purposes should have sufficient height and depth to protect public and private views. In the absence of existing natural vegetation, solar arrays should be screened by native plantings beneficial to wildlife and pollinators that will grow to a sufficient height and depth to provide effective screening within a period of 5 years. Partial screening to break the mass of the site and to protect public and private views of the project may be appropriate.

The Town should develop a delineated "solar overlay district" based on the current availability of 3 phase power and current land use. This district should contain a provision for allowing "proximity solar development", as well as allowing fringe siting along wetlands, or in the wetlands buffer zones. Arrays should be located within a site such that views of the array from the roadway and neighboring property are minimized.

All solar projects should be decommissioned at the end of their useful life and the property should be restored to its pre-project condition. Developers of all projects more than 100kW should provide the municipality with appropriate assurances to guarantee funding exists to decommission the project including proper disposal and/or recycling without burdening the Town.

For the purpose of this plan, either the Selectboard or the designed appropriate municipal panel should be deemed to represent the voice of the communities "average person" with respect to the "Quechee Test" when evaluating the aesthetics of a proposed solar array.

## Wood

Wood is available as both firewood and pellets. Generally firewood is produced in or within a few miles of Barre Town which minimizes transportation costs and supports a local economy. Firewood removal from forest land is also an

important tool for forest, wild life, and agricultural land management. While using fire wood for heat in stoves and inside boilers is a logical step to replace or supplement fossil fuels, outside wood boilers have their own particular set of issues. Generally the flue pipe (smoke stack) is short and in certain meteorological conditions can cause significant ground level smoke plumes to the detriment of the neighbors. Outside wood boilers used in the summer for hot water production can also create low lying smoke plumes.

- There may be zones where these devices may not be compatible (high and very high residential).
- Zoning regulations should be reviewed to define the appropriate use of outside wood boilers.

Pellets at this point are not produced locally so not unlike fossil fuels there is transportation cost associated with them. But still they are a renewable energy source and do replace fossil fuel usage. Pellets burn more efficiently than firewood and hence is less of a concern for contributing to chimney fires reducing demands on the fire department

At this time there is little opportunity for hydroelectric production due to small size of the streams and rivers in the Town, and the extensive and expensive permitting (state and federal) required.

- Should Barre Town ever establish a larger water supply system (from wells), an in-line electric generating system in the water transmission pipe may be worth considering

### **Geo-Thermal**

Geo-thermal heating is a clean, emission free technology which has minimal impact on adjacent property owners and Town services. Federal tax incentives may be available to installing a geo-thermal heating system. A state permit may also be required to operate a geo-thermal system.

### **Recommendations:**

- Continue to inform the public through zoning of State Residential Energy Standards and the requirement that new construction meet those standards.
- The Development Review Board should encourage developers (residential and commercial) to utilize energy efficient insulation, weatherization, heating and lighting in all projects.
- The Town should encourage the use of the Energy Efficient Mortgage Program which helps home owners finance energy efficiency improvements at lower than normal interest rates. The Town also encourages use of the CVCAC Weatherization Programs for eligible residents;
- The Town should encourage developers to design subdivisions for appropriate solar orientation and the use of solar hot water systems and photo voltaics when appropriate.
- Selectboard should create an Energy Committee comprised of Town citizens and officials to explore ways to make the Town government operations more efficient in the use of energy.
- Encourage homeowners to have a whole house energy audit performed to review: lights, insulation, weatherization, heating, appliances.

