A Local Official's Guide to Zoning and Land Use for Renewable Energy

An overview of how zoning and land use controls may impact renewable energy development

Produced by the Pioneer Valley Planning Commission with funding from the Renewable Energy Trust of the Massachusetts Technology Collaborative

How to Use This Guide

The following is an overview of how zoning and land use controls may impact renewable energy development, combined with recommendations to guide local officials in promoting renewable energy. Ultimately, a range of local considerations will determine the form and scope of a town's renewable energy efforts. These recommendations are meant to provide a general framework for analyzing your town's zoning environment and identifying beginning points, as well as longer-term strategies, for the regulatory reform process. Each town should undertake an individualized assessment of factors that will influence the development of land use policies to address renewable energy.

Local Attitudes

Attitudes of residents and landowners will be critical in the development and adoption of any regulatory changes needed to accommodate renewable energy operations. Local planning documents may shed some light on community attitudes toward this kind of land use.

Existing Plans

Review the most recent Master or Comprehensive Plan completed in your municipality. Most master planning documents feature a list of goals and strategies that could include references to renewable energy, energy production, energy infrastructure, or sustainable growth. Although most plans will not specifically mention renewable energy development, these municipal land use policy documents are the most likely place to begin a search for recently documented resident attitudes toward general sustainability.

Surveys & Visioning

Many strategic plans begin with a 'visioning process' during which local residents and employers are able to voice their opinions on a range of growth and development topics. If

your community has completed a visioning process in recent years you may find that a community-wide survey was conducted to measure residents' attitudes toward a range of subjects. Study these survey results for any indication of popular opinion regarding local or regional renewable energy. If no recent citizen surveying has been completed in your community, you should consider some sort of limited survey to be a useful tool in determining how local residents might respond to the development of renewable energy resources in their backyards. A mailed survey sent to a random sampling of households could serve to establish the general attitude of residents and help you to shape any proposal for regulatory change.

Public Outreach

Working with a local newspaper to highlight the issue of renewable energy is an alternative to the survey tool in helping to identify citizen attitudes. A letter to the editor from an elected or appointed official outlining the issue could be an effective way to begin the discussion. Alternatively, a brief "white paper" highlighting the pros and cons of various alternative energy technologies could establish an informed dialogue in the community and set the stage for additional discussion regarding local land use options. If a local paper is not willing to provide a forum for this discussion, your community might consider producing a local access TV program centered around the issue of renewable energy. An increasing number of municipalities are using local

Community Planning Workshop - Palmer, MA

access TV as a dynamic forum for locally important issues. A "call-in" segment of the program can be used to solicit immediate input from viewers and offer the opportunity for a less static and very watchable affair.

Anemometry Installation - Northfield, MA

The Internet also provides an excellent way to distribute information regarding specific projects or more general issues and opportunities related to renewable energy development. This tool becomes most effective when visitors to the web site are given the option to respond or comment on the information presented.

Existing Community Resources

An honest review of local resources is an important part of any municipal renewable energy assessment. Given the limits of the natural energy resources and the current technologies for harnessing these resources it is clear that not all communities will be viable hosts for all renewable energy operations. Communities with highland areas may be well situated for wind power while forested communities may discover that tree trimmings or nursery cuttings can provide a source of sustainable local energy. Solar access on a community level is typically site dependent with some hillsides or heavily urbanized sites being less suitable for these systems. A mapping of local waterways may indicate local potential for micro-hydro applications. GIS (Geographic Information Systems) mapping analysis is an extremely useful tool for determining the gross, and site-specific, viability of renewable energy operations. Information regarding geographical appropriateness for various technologies is available from organizations involved in developing sustainable energy. (see Resource List on back page)

SODAR Operation - Mt. Tom, MA

Physical Appropriateness

Physical appropriateness is a factor that must be assessed locally. In part, the appropriateness of a generating facility or distribution system is linked directly to attitudes in your community regarding the acceptability of non-residential uses. Several attributes should be considered as critical characteristics in seeking acceptance from the community through its land use regulations. These include scale, bulk, height, visual presence (size, construction materials used), human environmental impact (noise, glare, smell, lighting), and performance (level of activity on site, motion and movement, vehicle traffic, emissions). Although the development of sustainable, renewable sources of energy is in the best interest of the larger human community, it cannot be forgotten that at the neighborhood level, any land use that threatens to change the local built and natural environment must be introduced and discussed with care and sensitivity toward those residents who will be asked live with it.

LAND USE CODE REVIEW

We encourage municipalities to review their own land use codes in light of the information provided below. Areas for attention include:

- Purpose Statements: both general and district-specific
- Use Provisions: definitions, type of approval, and availability of variances
- Incentives: including review waivers and dimensional/density bonuses
- Subdivision and Planned Unit Development Regulations

PURPOSE STATEMENTS

The General Purpose provision typically is the first section in a Zoning Bylaw. It sets the tone of the bylaw by making a visionary statement about what the bylaw is meant to accomplish. Similar purpose statements should accompany each zoning district delineated within a town. Purpose statements are not just window-dressing: these statements contain the overarching statutory framework that can guide boards' zoning decisions and thus give the town control over development. Well-tailored and considerate purpose statements can serve two crucial functions for a town. First, they can induce desirable changes by sending clear, receptive messages to property owners and developers regarding certain uses and structures. Just as importantly, purpose statements can control undesired development by making strong, legally-enforceable statements about the character and priorities of the town and its districts.

A town seeking to encourage renewable energy development can do so by incorporating positive language in its general and district-specific purpose statements.

General Purpose Statement

To be inserted in standard statement adopted from SZEA (Mass. General Laws, Chapter 40A): "...to encourage the development and use of renewable energy resources including, but not limited to, solar, wind, biomass, methane (landfill gas), micro-hydro, and other similar sources..."

District-Specific Purpose Statement

To be inserted in district-specific statements:

- After explicit statements regarding discouraged uses: "...such provision should not be read to discourage the development and use of renewable energy facilities where such facilities meet the specific criteria outlined [below]"
- Standing alone or as part of an explicit statement regarding encouraged uses: "...[in addition to/complementing] the predominant use in the district, uses related to energy generation from renewable resources are encouraged."

Resource Monitoring Site with PV Power - Thompson Island, MA

USES and VARIANCES

Use Definitions

A zoning by-law may prohibit a use simply by excluding it from the table (or list) of uses allowed in a given zoning district. In standard zoning enforcement practice, when a zoning by-law does not mention a specific use and the use does not fit within the definition of any other use in the bylaw, the use is considered specifically prohibited. When a use is specifically prohibited, a developer proposing such a use may not obtain a building permit unless the municipality has a provision for a use variance—and one is granted by the local Zoning Board of Appeals. Since the enactment of the updated state enabling legislation in 1975, the concept of the use variance has fallen into severe disfavor making this an extremely unlikely path for an applicant seeking approval of an application under a local zoning bylaw. A final recourse for a proponent of an omitted or prohibited use is to petition the town for an amendment to the local zoning by-law so as to permit the desired use.

Most zoning codes do not contain use definitions that would clearly apply to a renewable energy project. Thus, local officials reviewing such projects are likely to face difficulties regarding the interpretation of local land use codes, and applicants will encounter great uncertainty in the zoning process. To avoid these difficulties, a town can pass provisions explicitly defining desired (and undesired) energy generation facilities. Special attention should be paid to:

1. distinguishing small scale, renewable energy facilities from "power plants," and
2. differentiating among different types of energy generation facilities based on fuel sources, scale, technology, and neighborhood impact.

Two enclosed methane flares at the I-95 Landfill in Michigan

A bioreactor constructed on a landfill in Yolo County, California

Definition of Energy Generation Facility

"Energy Generation Facility" means a generator unit that may use a variety of sources and/or products for the production of power either

1. for use on-site [and/or by non-commercial users],
2. for sale to the grid, accessory to on-site use of power, or
3. for sale to the grid as a primary use.

Fossil Fuel Generation Facility

"Fossil fuel generation facility" means an energy generation facility that uses petroleum, coal and/or natural gas products as sources for the production of power as a primary use or that is intended to run for a length of time exceeding [7] days. This definition does not include a facility that provides on-going support power to other stationary energy facilities, such as fuel cells, or that provides temporary emergency power.

Distributed Generation Facility

"Distributed generation facility" means a small- or mid-scale energy generation facility located at or near the customer site. The broad term encompasses advanced combustion technologies such as microturbines, reciprocating engines and fuel cells, as well as non-combustion options like photovoltaic cells and wind turbines. Types of energy sources may include, but are not limited to, petroleum, methane, ethanol, thermal, wind, solar, hydro, and other sources as determined by the reviewing official.

From left to right, Kristen Burke, Sally D. Wright and Nancy Nylen at the windmill meeting in Lenox, MA

TYPE OF APPROVAL

There are several methods for permitting renewable projects in land use codes:

By-Right

Renewable energy projects can be allowed "by-right" in a zoning bylaw. In order to accomplish this, a municipality would have to include the specific use categories in the table (or list) of uses as being permitted or allowed. Although a permitted use does not require additional zoning oversight, the specific project would still require a building permit and would be subject to any environmental and health regulations that apply.

This solar home, constructed by Maine Solar House, generated 2,051 kW hrs of electricity from its integrated roof array in 6 months.

Administrative Review

This form of local zoning oversight is often overlooked by Massachusetts communities. Administrative Review of a site plan for a renewable energy project would require a planning board to review the site plan and allow the board to set reasonable standards for the project. This is done at a regular meeting of the board and does not require the public hearing process that is a necessary part of the special permitting process. The project applicant must meet any reasonable standards set by the board, however, the planning board cannot deny the proposed use. This differs fundamentally from the special permit process in which a board may simply reject a proposed use should its character be found to be inappropriate for the neighborhood in which it is being located. The administrative review and approval process is best used for categories of land use that are basically appropriate within a zoning district but that may require some board oversight as to how they appear and function on a specific property.

Special Permit

The special permit process provides for the greatest amount of control by a municipality seeking renewable energy projects. The primary benefit of this process is that special permitting allows the reviewing board to reject a proposed use if it does not meet the standards established in the zoning bylaws. The ability to say 'no' to a proposal gives the board much leverage in the review process while forcing the applicant to prepare a comprehensive response to any likely criticisms of the development. The review criteria, or performance criteria, for projects can also be used to provide incentives for preferred uses by reducing the application or review burden or by waiving certain conditions and requirements for a project. It must also be stated that the special permitting process can be a daunting obstacle for some applicants. Often an applicant must spend considerable sums of money in order to prepare an adequate special permit application. Without the assurance that the project will ultimately move forward, this can discourage the development of projects in a community. If a municipality wishes to encourage development of renewable energy projects, the special permit process should be applied carefully so as not to create unnecessary regulatory burdens for applicants.

Vestas 660 kW Wind Turbine - Hull, MA

Variances

Even well-drafted definitions and appropriate types of approval will not cover every desirable proposed use in every district. Thus, a town may also consider adopting a provision for a 'use variance' that would allow individual applicants to seek approval of renewable energy projects that the table of uses would otherwise not allow. However, given the fact that state courts may look unfavorably upon a use variance in Massachusetts, it is recommended that municipalities seeking discretionary review power over renewal energy projects instead use the Special Permit process.

INCENTIVES

A town looking to encourage development of renewable energy resources may do so through creation of an overlay district and/or incentives, both of which must be provided for in the zoning by-law. These two zoning tools allow a town to signal to developers that the community values and prefers certain uses. Towns have discretion in deciding which uses will receive special treatment. For example, overlay districts and incentive provisions that encourage creation of art and civic space, as well as affordable housing and green space preservation, have enjoyed recent popularity with towns seeking to revitalize their towns and town centers. The same approach may be taken for renewable energy projects.

Dimensional Incentive

One form of incentive is the dimensional or density bonus, e.g., the allowance for extra square footage of commercial space, additional residential units or height allowances above those permitted by right, awarded to developers who propose projects that incorporate a renewable energy component. This incentive may work very well in a mixed use setting such as in a Planned Unit Development and, in the case of a density bonus, may serve to increase the number of potential users of a renewable energy source.

Solar Sensor Installation - Mt. Tom, MA

Expedited Review and Waiver of Application Requirements

This technique is particularly effective when combined with conventional special permitting as these incentives may help to reduce the pre-construction costs of a proposed project. The waiver of fees or some application requirements can also serve to reduce the time and effort needed to take a project from the conceptual phase to the final ribbon cutting—another cost savings for the developer.

Overlay Districts

An overlay district is a simple way to take these incentives and make them available either (1) in a specific geographic area within the town (which can encompass several districts) or (2) in the town as a whole. The overlay district may supplement or trump the underlying district zoning. Additionally, as the town decides the boundaries of the overlay district, it exercises some control over the location of renewable energy projects.

SUBDIVISION REGULATIONS AND PLANNED UNIT DEVELOPMENT

The Subdivision Control Law, a separate enabling statute from the Zoning Act, grants authority to municipalities to adopt regulations governing the subdivision of land. Essentially, these regulations dictate the process for creating new roads. However, subdivision regulations also guide the process for ensuring that development is orderly and safe and include standards for lot layout, road construction, provision of amenities like street trees, vehicular and pedestrian access, the provision of development infrastructure, and other discretionary topics which a planning board may regulate.

Subdivision regulations are developed and adopted by local planning boards and do not require legislative adoption by Town Meeting or City Council.

General Guidance

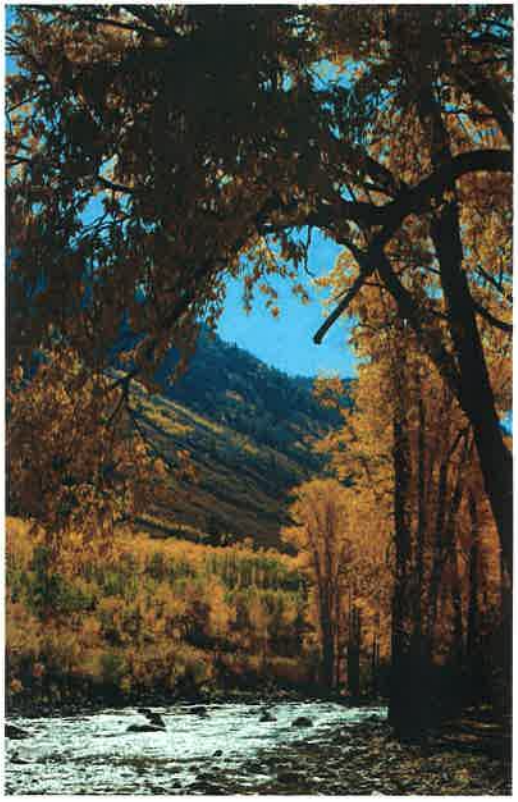
Subdivision regulations can encourage residential subdivision design that facilitates distributed generation and the use of renewable energy sources. For example, communities may require that Development Impact Statements address distributed generation and renewable energy technologies. Perhaps the most significant way in which subdivision regulations can reduce the barriers to renewable energy is through encouraging street and lot layouts that take advantage of solar orientation. By laying streets out on a west to east axis and by orienting buildings so that their longest sides face within 30 degrees of south, solar access can be optimized. This has advantages for maximizing solar heat gain during the winter months, as well as providing a potential for utilizing photovoltaic technology. Other measures might include requiring siting of street trees so as to avoid blocking solar access.

Open Space Provisions

In communities where Open Space Subdivision (also known as Cluster or Conservation Development) may occur, the opportunity exists for allowing some power generation in the otherwise permanently protected open areas of the development. Communities that allow this type of residential development currently would likely require an amendment to their zoning regulations specifically allowing the production of renewable energy in the open areas of the subdivision while establishing clear guidance as to the scope and scale of such facilities.

Planned Unit Development (PUD)

State legislation gives Massachusetts municipalities the explicit authority to issue special permits for planned unit development (PUD)—a mixed-use development project that may include single- and multifamily dwellings as well as office and commercial space. The goal of planned unit development regulations is to provide a set of standards for the approval of a PUD development through an administrative review process. Although PUD regulation is similar to site plan and subdivision review, it typically grants more discretion to the reviewing authority. Reviewing the project as a single entity allows improved, comprehensive siting, higher development densities, and protected open space. Thus, PUD developments may be well-suited to the deployment of renewable energy generation. Higher densities in these developments mean that economies of scale may be achieved while open space set-asides and comprehensive siting allow installation of these energy facilities in an appropriate on-site location. In addition, the Planned Unit Development process allows the seamless integration of dimensional and density bonus incentives.



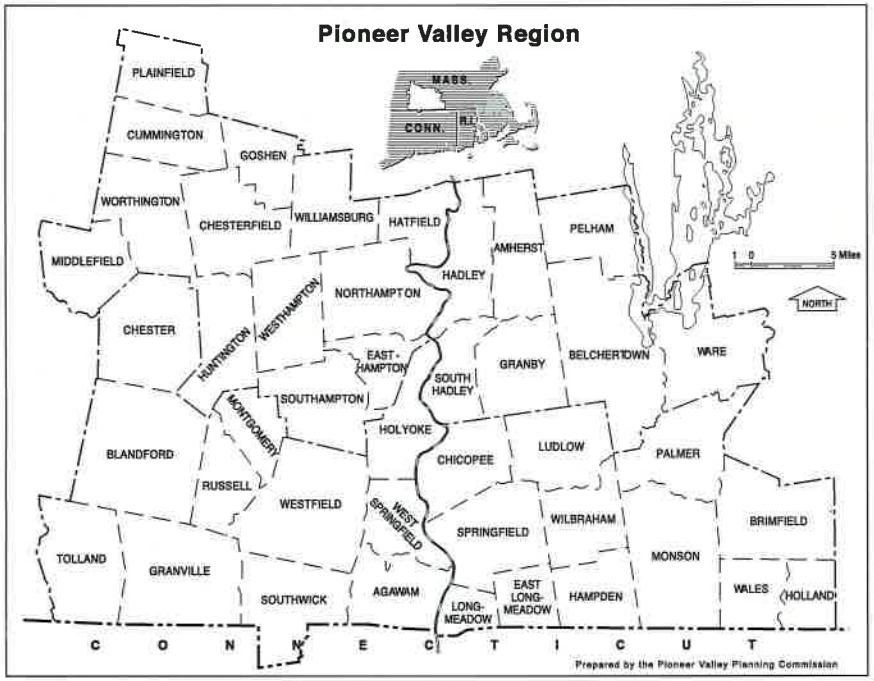
CONCLUSION

Encouraging the development of renewable energy or distributed generation projects in your municipality is not only a smart way to protect our environment, it also lays the groundwork for ushering in a more sustainable future for the generations to follow. These new—and sometimes ancient—technologies for harnessing the power of our planet can be developed throughout the Pioneer Valley. Modest changes to our local land use laws will tell the developers of renewable energy sources that this region is ready for sustainable projects that improve our quality of life and reduce our dependence on outside sources of energy.

If your community would like assistance in developing land use regulations that encourage renewable energy projects, contact the Pioneer Valley Planning Commission (PVPC) at:

Pioneer Valley Planning Commission
26 Central Street, West Springfield, MA 01089-2787
Phone: (413)781-6045 • Email: cmiller@pvpc.org
Web Site: www.pvpc.org

PVPC's Local Technical Assistance program provides technical support to the 43 municipalities in the Pioneer Valley including the development of zoning bylaws, zoning and resource maps, and subdivision regulations.



For more information:

Pioneer Valley Planning Commission
www.pvpc.org and www.pvsustain.com

Massachusetts Technology Collaborative
www.MassTech.org

Massachusetts Department of Energy Resources
www.mass.gov/doer

Northeast Sustainable Energy Association
www.nesea.org

United States Department of Energy -Energy Efficiency and Renewable Energy
www.go.doe.gov

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