

Rationale: The Town of Colrain Solar Bylaw was developed using then current DOER Model Solar Bylaw (circa 2011) and guidance for Large Scale Ground Mounted Solar Photovoltaic (PV) Installations. The DOER model bylaw was intended for solar installations of 1MW nameplate capacity or larger (a footprint of approximately 4 acres). The latest DOER revision to the model bylaw (12/2014) revises this capacity down to 250kW (a footprint of approximately 1 acre).

By any measure a system equal to or greater than 250kW would be considered "large scale" potentially requiring Planning Board and/or Zoning Board scrutiny of the layout, scale, safety, floodplain analysis, storm water and vegetative screening and controls and decommissioning etc.

The Town of Colrain Bylaw (Section 15 of the Town Bylaws) however modifies the DOER Model Bylaw and defines "Large Scale" solar installation as being anything over 0.1 acres (about 20kW). DOER guidance clearly defines any system under 250kW as a small to medium size solar installation, something that might be used for residential, small business or municipal applications, and is not recommended for the level of scrutiny and regulation required for a Large-Scale system.

At the time that the Colrain Solar Bylaw was approved at town meeting and submitted to the AG's office, I was told by their office that it was among the most restrictive bylaws in the state. There hasn't been a definitive study on the impact of this bylaw (it is difficult to acquire data on the chilling effect local bylaws may have on business, agriculture and other enterprises because they typically choose to abandon the project or opt to move to another town) but I am aware of at least two instances in which this occurred in Colrain.

My own cluster zoned community in Colrain put into service a 16kW ground mounted solar array in 2012, just prior to the Colrain Solar Bylaw going into effect. As my community grew, we wanted to expand our array, perhaps by another 16-20 kW (note: the combined capacity would still have been considered a relatively small-scale solar installation by DOER). However, we found the Site Plan Review process to be onerous, and instead we chose to place roof-mounted solar on each individual's residence. This added to our installation cost and we lost the advantages of having a single service location.

The second example is the Colrain Energy Committee's own efforts to site a ground mounted solar array on town property to offset municipal electric expenses. Although the array was not a "large scale" array by DOER standards it would have faced site plan review and other restrictions that were felt at the time to be prohibitive.

My intentions for suggesting modifications to Colrain's Large-Scale Ground-Mounted Solar Bylaw are to 1) correct the size requirements and scale definitions (i.e., foundations of the Bylaw) so that it is more consistent with DOER guidance and therefore most other towns in MA. 2) decrease the Town's liability exposure by complying more closely with MGL ch 40A Section 3. 3) make it easier and more attractive for anyone wanting to take advantage of solar opportunities i.e., as outlined by the Solar Resource and Infrastructure Report published in

collaboration with Umass. 4) to facilitate an increase in solar installations in order to meet aggressive MA goals mandated by the Global Warming Solutions ACT.

Note: Any consideration of Solar Bylaws must include a basic discussion of MGL ch. 40A section 3. This existing state law largely exempts solar photovoltaic installations from local zoning restrictions. The law provides, in relevant part, that:

“ No zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare.”

The statute does not suggest that all review is unreasonable regulation, every installation regardless of size is subject to Local Town Building codes and a review by the Building Inspector to ensure that it will not endanger public health and safety. Large-scale installations may also require additional review (e.g., by Select board, Planning Board and/or Zoning Board) because of their size and obvious potential impact on the local community. On the other hand for smaller scale solar systems (i.e., under 250kW) the DOER interprets MGL ch. 40A section 3 to allow By-right zoning with no special review or permitting requirements.

Please note that while the MGL ch. 40A section 3 is a robust statute some of the specifics of what constitutes “unreasonable regulation” are being determined by court cases currently underway. There is little settled case law to help determine how to interpret the law. Until there is more of a legal framework it is considered good practice to adhere to the law where possible avoiding regulations that depend on less clear legal aspects such as its exceptions, i.e., “to protect the public health, safety or welfare”. Things to avoid might include, for example, extending the review/permitting process for large-scale solar to smaller systems; considering aesthetics to be considered in a site plan review or special permitting; to allow a site plan review to deny a permit.

Recommendations: My recommendations will affect 4 areas of the Town Bylaws including overall Definitions located in Section 2, Use regulations in Section 4, Development Site Plan Review in Section 13, and the Solar Bylaw itself which comprises Section 15. Section 15 is included below in its entirety, to make it easier to make suggestions in-line with the text. I have tried wherever possible to use DOER recommendations verbatim.

Section 2 Definitions (replace current definition(s) with...)

- 1) “Large-Scale Ground-Mounted Solar-Photovoltaic System - A solar system that is structurally mounted on the ground and is not roof-mounted, and has a minimum nameplate capacity of 250kW DC, having a footprint of about 1 acre”

Section 4 Use Regulations

- 1) In the Use Table...

I suggest eliminating this table entry.

“Large-Scale Ground-Mounted Solar Photovoltaic System with a footprint greater than 0.1 acres up to 1.0 acres (see Section 15)

Village = SPR Rural = SPR Commercial/Industrial = SPR “

(Unless we want to distinguish between Medium-Scale and Small-Scale where Medium-Scale would have only the Village district with SPR, as per the DOER)

Note: Large-Scale Ground-Mounted Solar Photovoltaic systems greater than 250kW require Site Plan Review and Special Permit in both the Rural and Commercial-Industrial Districts. In a Rural district where the land is being actively farmed, besides the exemption provided by MGL ch. 40A Section 3, as already mentioned, Section 3 of 40A provides further exemption for agricultural uses. When the majority of the power from a solar energy system (or a wind turbine) is integral to farm production, construction and/or operation of the system it would be additionally covered by the Agricultural exemption. It is not clear to me if this would fully exempt Agricultural use from any SP/SPR review in the rural district??

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2) Amend 4.2.3 to state,

Smaller scale ground-mounted solar-photovoltaic systems with a footprint of less than 1 acre and building mounted solar-photovoltaic systems do not need to comply with Section 15 but shall require a building permit and must comply with all applicable local, state, and federal requirements.” (Note this also could be amended to make the exception for Medium-scale systems as noted above).

Section 13 Development Site Plan Review

1) 13.3.6 Amend as follows,

2) Construction, operation, and/or repair of Large-Scale Ground-Mounted Solar-Photovoltaic Systems.

What follows below is Section 15 of the Town Bylaw containing the Solar Bylaw in its entirety with my annotations...

SECTION 15: LARGE-SCALE GROUND-MOUNTED SOLAR-PHOTOVOLTAIC SYSTEM BYLAW

15.1-Purpose

The purpose of this bylaw is to regulate the creation of Large-Scale Ground-Mounted Solar-Photovoltaic Systems by providing standards for the placement, design, construction,

operation, monitoring, modification and removal of such Solar-Photovoltaic Systems that address public safety; minimize impacts on scenic, natural, and historic resources; and provide

adequate financial assurance for the eventual decommissioning of such Solar-Photovoltaic Systems.

15.1.1-Applicability. This section applies to Large-Scale Ground-Mounted Solar-Photovoltaic Systems proposed to be constructed after the effective date of this section. This section also

pertains to physical modifications that materially alter the type, configuration, or size of Solar-Photovoltaic Systems and/or related equipment.

15.1.1.1-The provisions set forth in this section shall apply to the construction, operation, and/or repair of Large-Scale Ground-Mounted Solar-Photovoltaic Systems ~~occupying a footprint greater than 0.1 acres.~~

15.1.1.2-Smaller scale ground-mounted solar-photovoltaic systems (occupying a footprint less than or equal to ~~0.1~~ acres) and building-mounted solar-photovoltaic systems do not need to comply with this section but shall require a building permit and must comply with all other applicable local, state, and federal requirements.

15.2-General Requirements for Large-Scale Ground-Mounted Solar-Photovoltaic Systems

15.2.1-Compliance with Laws, Ordinances and Regulations. The construction and operation of all Solar-Photovoltaic Systems shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part of a Solar-Photovoltaic System shall be constructed in accordance with the State Building Code and other applicable local, state and federal requirements.

15.2.2-Building Permit. No Solar-Photovoltaic System shall be constructed, installed or modified as provided in this section without first obtaining a Building Permit including payment of the required fee.

15.2.3-Fees. The application for a Site Plan approval and/or for a Special Permit for a Solar-Photovoltaic System shall be accompanied by the appropriate fees for each review

Town of Colrain Zoning Bylaw: Town Meeting Approved Revisions 1/27/2020 63 or permit, as specified in the Rules and Regulations of the Planning Board and the Zoning Board of Appeals, respectively.

15.3-Site Plan Review Requirements

All Large-Scale Ground-Mounted Solar-Photovoltaic Systems with 250kW or larger of rated nameplate capacity (a footprint greater than 0.1 about 1.0 acres or more) shall undergo Site Plan Review by the Planning Board pursuant to Section 13,

Development Site Plan Review, prior to construction, installation or modification, and shall also comply with the additional provisions of this section.

15.3.1-Required Information. Pursuant to the Site Plan Review process, the solar-photovoltaic system project proponent shall provide the following information:

15.3.1.1-Name, title, address, contact information and signature of any agents representing the project proponent;

15.3.1.2-Name, title, address, contact information and credentials for proposed Solar-Photovoltaic System installer(s);

15.3.1.3-Zoning district designation for the parcel(s) of land comprising the project site (submission of a copy of a zoning map with the parcel(s) identified is suitable for this purpose);

Note, I removed the following items consistent with the latest DOER template (which also removed them) and because they seem to potentially violate MGL ch. 40A section 3 as they are not directly related to public health, safety and welfare.

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~~15.3.1.4-Locations of any Priority Habitat Areas defined by the Natural Heritage & Endangered Species Program (NHESP) on or near the project site;~~

~~15.3.1.5-Locations of floodplains and inundation areas for moderate or high hazard dams that would impact the project site;~~

~~15.3.1.6-Locations of local or National Historic Districts. The owner shall obtain written local or national historical or archeological district verification from the Town Clerk as to whether or not the project is sited within such a district, then at the time of site plan submission to the Town Clerk, the owner must also complete a Project Notification Form (obtain from: <http://www.sec.state.ma.us/mhc/>) accompanied by standard documents, e.g., USGS locus map, scaled project plans showing existing and proposed conditions, and current photographs keyed to the plan);~~

Note that MGL Chapter 40C covers "Historic Districts" Solar energy systems are mentioned specifically under Section 7 which asks for consideration and dispensation for solar installations.

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15.3.1.7-Proof of liability insurance. The owner or operator shall provide a certificate of insurance showing that the project has sufficient liability coverage pursuant to industry standards, including coverage without limitation during construction, operation, and maintenance and possible damage outside of the Solar-Photovoltaic System area;

15.3.1.8-Utility Notification. No Large-Scale Ground-Mounted Solar-Photovoltaic System shall be constructed until evidence has been provided that the utility company that operates the electrical grid where the Solar-Photovoltaic System is to be located has been informed of the Solar-Photovoltaic System owner's or operator's intent to install a grid-connected generator facility;

15.3.1.9-Blueprints or drawings of the Solar-Photovoltaic System signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts showing the proposed layout of the system and any potential shading from nearby

Town of Colrain Zoning Bylaw: Town Meeting Approved Revisions 1/27/2020 64 structures as well as the location and size of proposed parking and driveways, walkways, access and egress points;

15.3.1.10-Documentation of the major system components to be used, including the electric generating components, transmission systems, mounting system, inverter;

15.3.1.11-The project proponent shall submit documentation of actual or prospective authority to access and control the project site sufficient to allow for construction, operation, and maintenance of the proposed Solar-Photovoltaic System;

15.3.1.12 Removed from latest DOER template...

~~15.3.1.12-A list of any hazardous materials proposed to be located on the site in excess of household quantities and a plan to prevent their release to the environment;~~

15.3.1.13-A copy of an Interconnection Application filed with the utility including a one- or three-line electrical diagram detailing the Solar-Photovoltaic System, associated

components, and electrical interconnection methods, with all Massachusetts Electrical Code compliant disconnects and overcurrent devices;

15.3.1.14-A plan for the operation and maintenance of the Solar-Photovoltaic System, which shall include measures for maintaining safe access to the Solar-Photovoltaic System, storm water and vegetation controls, as well as general procedures for operation and maintenance of the Solar-Photovoltaic System.

15.3.2-Project Design

15.3.2.1-Setbacks: All Large-Scale Ground-Mounted Solar-Photovoltaic Systems shall have front, side, and rear yard setbacks of at least 50 feet. Acreage thresholds apply in the aggregate to new facilities and expansion of existing facilities. For expansions, the acreage of the existing facility would be added to those of the proposed expansion to determine the overall size and generating capacity. Required setback areas shall not be counted toward a facility's total acreage.

15.3.2.2-Appurtenant Structures. All appurtenant structures to Solar-Photovoltaic Systems shall be subject to current zoning regulations concerning the bulk and height of structures, lot area, setbacks, and building coverage requirements. All such appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other. Whenever reasonable, structures should be shaded from view by vegetation and/or joined or clustered to avoid adverse visual impacts.

15.3.2.3-Lighting. Lighting of Solar-Photovoltaic Systems shall be consistent with Town, state and federal law. Lighting of other parts of the Solar-Photovoltaic System, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Where feasible, lighting of the Solar-Photovoltaic System shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.

15.3.2.4 Signage. Signs on photovoltaic Solar-Photovoltaic Systems shall comply with the Town's sign regulations in Section 5. A sign consistent with the sign bylaw shall be

Town of Colrain Zoning Bylaw: Town Meeting Approved Revisions 1/27/2020 65 required to identify the owner and provide a 24-hour emergency contact phone number. Solar-Photovoltaic Systems shall not be used for displaying any advertising except for reasonable identification of the manufacturer.

15.4-Special Permit Requirements

Large-Scale Ground-Mounted Solar-Photovoltaic Systems with a footprint greater than 1.0 acres shall also require a Special Permit from the Zoning Board of Appeals pursuant to the provisions of Section 12, Special Permits, and shall comply with the additional provisions of this section.

15.4.1-Administration and Waivers. The Special Permit-Granting Authority may waive any of the requirements for a Special Permit submittal and approval if the project warrants such action. It may also request any additional information it shall need to render a decision. The Special Permit-Granting Authority shall have the right to retain a registered professional engineer, planner, designer or other professional to advise the Board regarding any or all aspects of the Special Permit submittal. The applicant shall be responsible for the costs of such advice.

15.4.2 Application Process. An applicant for a Special Permit shall file a completed application with the Town Clerk. The Town Clerk shall acknowledge receipt of the plans by signing and dating the application form. The application submitted to the Town Clerk shall include seven (7) copies each of an application form, Site Plan and any narrative documents as outlined in the submittal requirements. Upon receipt of the application, the Town Clerk shall transmit copies of the application to the Special Permit-Granting Authority, Conservation Commission, the Board of Health, the Building Inspector, the Highway Superintendent, the Fire Chief and the Police Chief. In addition, the Town Clerk will notify the Historical Commission and Open Space Committee that a copy of the application is available for review at Town Hall. These Town Boards and municipal officials shall have 45 days from the date the completed application is received by the Town Clerk to report to the Special Permit-Granting Authority their findings and recommendations, and they can attend the public hearing(s). No Special Permit for Large-Scale Ground-Mounted Solar-Photovoltaic Systems shall be issued until the Planning Board has approved the Site Plan or unless the required time period for taking action on a Site Plan has lapsed without action from the Planning Board. The applicant is also responsible for obtaining all applicable permits or approvals that may be required for the proposed development from other Town Boards or municipal officials.

15.4.3-Public Hearing. The Special Permit-Granting Authority shall hold a public hearing within 65 days after the filing of an application and shall take final action on an application for a Special Permit within 90 days of the close of the public hearing. Notice and posting of the public hearing shall comply with the provisions of MGL c. 40A, §11, regarding notice for public hearings. To the extent permitted by law, the Special Permit

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public hearing shall be coordinated with the public hearing required for Site Plan Review.

15.5-Environmental and Safety Standards

15.5.1-Screening. Design features which will integrate the proposed development into the existing landscape, maintain neighborhood character, and screen objectionable features from neighbors and roadways; Solar-Photovoltaic Systems and any appurtenant structures shall be screened from view by a minimum fifteen (15) foot wide staggered and group planted shrubs and small trees. Such plantings shall use a mix of deciduous and evergreen species and may be located within the setback area. Said

vegetative screening shall reach a mature form to effectively screen the Solar-

Photovoltaic System within five years of Solar-Photovoltaic System. Planting of the

vegetative screen shall be completed prior to final approval of the electric Solar-Photovoltaic System by the Building Inspector. The facility shall be designed to minimize

impacts to agricultural and environmentally sensitive land and to be compatible with continued agricultural use of the land whenever possible. The use of exotic plants, by the most recent copy of the "Massachusetts Prohibited Plant List" Department of Agricultural Resources, is prohibited. Siting shall be such that the view of the solar electric generating Solar-Photovoltaic System from other areas of Town shall be as minimal as possible.

15.5.2-Vegetation Control. Herbicides shall only be applied by properly licensed personnel, as enforced by the Department of Agricultural Resources. Mowing, grazing or using geotextile materials underneath the solar arrays are possible alternatives.

15.5.3-Noise. Noise generated by Solar-Photovoltaic Systems and machinery shall conform to applicable state and local noise regulations, including DEP's Division of Air Quality noise regulations, 310 CMR 7.10. Sound or noise levels may not exceed 50 dBA, at the boundary of the property. A source of sound will be considered in violation of said regulations if the source:

15.5.3.1-increases the broadband sound level by more than 10 dBA above ambient;

15.5.3.2-produces a "pure tone" condition, when an octave band center frequency sound pressure level exceeds the two (2) adjacent center frequency sound pressure levels by three (3) decibels or more.

Said criteria are measured both at the property line and at the nearest inhabited residence. "Ambient" is defined as the background A-weighted sound level that is exceeded 90% of the time measured during equipment hours, unless established by other means with the consent of the DEP.

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15.5.4-Access Roads. Access roads shall be constructed to minimize impact to environmental or historic resources.

15.5.5-Emergency Services. The Solar-Photovoltaic Systems owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the local fire chief. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the Solar-Photovoltaic System shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the Solar-Photovoltaic System.

15.5.6-Solar-Photovoltaic System Maintenance. The owner or operator shall maintain the Solar-Photovoltaic System in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Medical Services. The owner or operator shall be responsible for the cost of maintaining the

Solar-Photovoltaic System and any access road(s).

15.5.7- Modifications. All material modifications to a Solar-Photovoltaic System made after issuance of the required building permit shall require approval by the Planning Board and the Special Permit-Granting Authority, where applicable.

15.6-Abandonment or Decommissioning

15.6.1-Removal Requirements. Any Solar-Photovoltaic System that has reached the end of its useful life or has been abandoned shall be removed. The owner or operator shall physically remove the Solar-Photovoltaic System no more than 150 days after the date abandonment or the end of its useful life. The owner or operator shall notify the Planning Board and Special Permit Granting Authority (where applicable) by certified mail of the proposed date of discontinued operations and plans for removal. Decommissioning shall consist of:

15.6.1.1-Physical removal of all Solar-Photovoltaic Systems, structures, equipment, security barriers, transmission lines, and other components from the site.

15.6.1.2-Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.

15.6.1.3-Stabilization or re-vegetation of the site as necessary to minimize erosion. The Planning Board and the Special Permit Granting Authority (where applicable) may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

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15.6.2-Abandonment. Absent notice of a proposed date of decommissioning or written notice of extenuating circumstances, the Solar-Photovoltaic System shall be considered abandoned when it fails to operate for more than one year without the written consent of the Planning Board and Special Permit Granting Authority (where applicable). If the owner or operator of the Solar-Photovoltaic System fails to remove the Solar-Photovoltaic System in accordance with the requirements of this section within 150 days of abandonment or the proposed date of decommissioning, the Town may seek a court order to enter the property and physically remove the Solar-Photovoltaic System.

15.6.3-Financial Surety. Proponents of projects shall provide a form of surety issued by an entity with sufficient financial strength, either through escrow account, bond or otherwise, to cover the cost of removal in the event the Town must remove the Solar-Photovoltaic System and remediate the landscape, in an amount and form determined to be reasonable by the Planning Board and the Special Permit Granting Authority (where applicable), but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein. Such surety will not be required for municipally- or state-owned facilities. The project proponent shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation.