

Diane Gould

QUESTIONS FOR AUGUST 9, 2016 WESTHAMPTON TOWN MEETING:

**I. Financial Implications:**

1. How will this project impact the property values of residents in our town?
2. How will this project impact the amount of town revenue generated by property taxes?
3. If property values go down and the amount of property taxes collected declines; what services in town will be reduced or eliminated?
4. Will there be any change in how the land used for this project is taxed by the town?
5. Will the town and/or residents benefit financially or otherwise from this project? Explain.
6. Specifically, how will the non-resident third-party benefit from this project?
7. Will the non-resident third-party obtain tax incentives? If so, what is the total dollar value and for how many years?

**II. Health and Safety Concerns:**

8. Has the police department been involved in the discussions about this topic from a safety perspective?
9. What concerns do the police have and how will those concerns be addressed?
10. Who will be monitoring the panels for damage and how often?
11. What happens when the solar panels are damaged or vandalized?
  12. Who repairs the damaged or vandalized panels?
  13. How quickly are the repairs made or panels replaced?
  14. If the panels are broken or destroyed, what is the threat to children and animals? (i.e. broken glass on the ground, electrical wires, cables, etc.)
15. A realistic issue is reflective glare from the panels. This is a serious threat for those driving, walking, or riding a bicycle/motorcycle on South Road and having excessive reflective sun glare. This may result in serious and life-threatening accidents; thus, more EMT, fire, and police involvement and additional resources may be necessary.
16. Has the fire department been involved in the discussions about this topic from a fire safety perspective?
17. What concerns does the fire department have and how will those concerns be addressed?
18. How are brush fires handled when there are solar panels mounted on the ground?

19. Are there specific concerns or safeguards when dealing with a fire in this situation?
20. Are there any toxic or hazardous materials that firefighters should be aware of and concerned about?
21. Do firefighters need specialized training on battling fires where solar panels are ground mounted?

### **III. Environment Concerns:**

22. How will these panels impact our area wildlife?
23. Has there been a study to determine if there are any endangered species that the town should be aware of and concerned about on this land?
24. If so, will appropriate environmental agencies be contacted and involved?

### **IV. The Future of Westhampton:**

25. What happens when the panels are no longer effective and generating solar power?
26. Are the panels removed? If so, who removes the panels?
27. Who determines if and when the panels should be removed?
28. What is done with the old panels if the panels are not able to be recycled?
29. If the nonfunctioning panels are not removed, will the future generations in town look at the eye-sore and destroyed landscape in Westhampton?
30. If this project is approved, is this opening up the town to allowing more commercial solar fields in Westhampton?
31. How many more solar rows will line the roads in Westhampton?

Bottom-line: Do the residents of Westhampton want the integrity, charm and character of the town destroyed by these rows of solar panels?

Require: A moratorium of 12-24 months on this issue to effectively plan for the future of our town and decide what is in the best interests of our environment, wildlife, and ALL current and future town residents.

Date: August 9, 2016

To: Westhampton Planning Board/ Public Hearing for Application #205

Subjects: "Points of Order" and "Marked Objections by Residents"

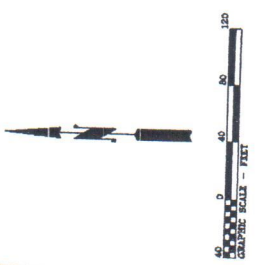
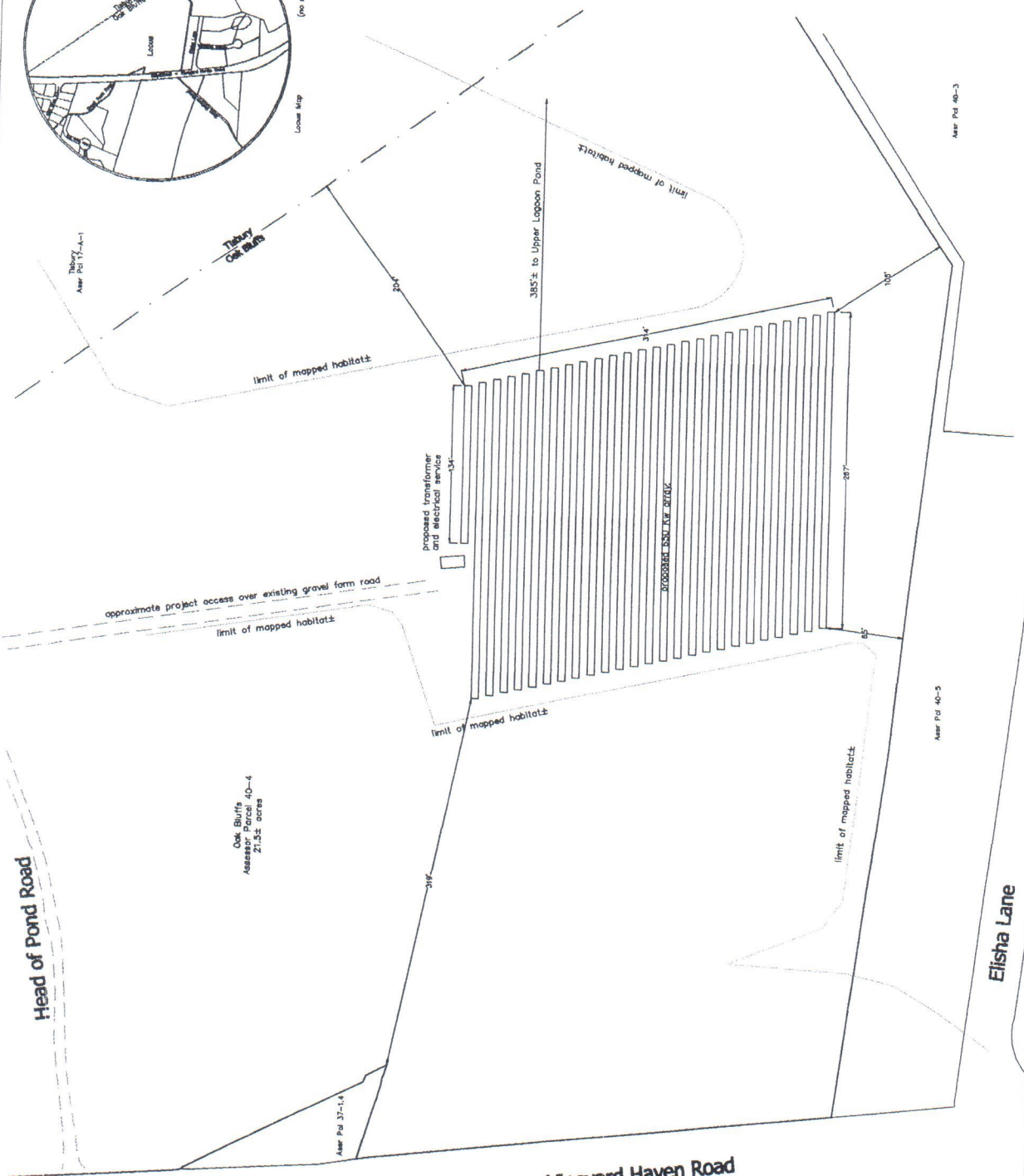
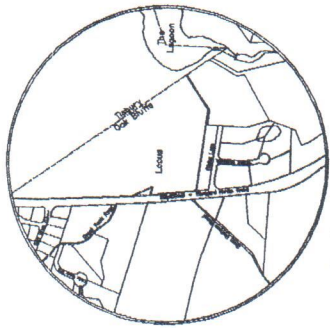
"Point of Order": Conducting this Planning Board Public Hearing is in violation of Town Zoning By-laws: Schedule of Use Regulations (Sect.3.0) and Special Permit w/ Site Plan Approval required (Sect. 6.3):

1. "Table 1 Sect. 3.0 Town Schedule of Use Regulations": "Large Scale Ground-mounted Solar Energy System" is NOT a listed use.
  - A. Bennett, Inc. selected "Private Utility Substation": Sect. 3.075 for Application.
  - B. Residents have a written statement 7/26/16: Robert Moran of National Grid and Lead Technical Support Consultant in Boston: "Large Scale Ground-mounted Solar Energy Systems" are not defined as private or public utility substations.
  - C. On 7/29/16: Boston Dept. of Energy Resources spokesperson agreed, stating that is not a definition of the Solar System; and Town needs to use legal State definitions.
  - D. Sect. VII - "#3.075 Private utility substation": NOT even defined in Town By-laws.
2. MA Open Meeting Law, MGL c.30A: No public meeting notice posted when Board met, deliberated, and voted on legality of "Use, Special Permit w/ SPA required, or if only a Building Permit was needed".
  - A. 6/14 Tuesday Monthly Meeting: met w/Bennett, Inc. "Just a discussion on what they are proposing". Members questioned each other how to proceed: proposed commercial use, "Commercial Solar System", is not a listed use.
  - B. 6/14 Minutes: Board concluded to seek legal/ professional opinion before proceeding. What posted meeting did Board conduct to deliberate and vote on how to proceed?
  - C. 6/20 Monday: Bennett, Inc. files Application under Sect. 3.075 with Town Clerk.
  - D. 7/12 Monthly Meeting: Board reviews App. #205 w/Site Plan, Schedules 8/9 Hearing
3. Sections 6.321 Application & 6.341 Procedures: Town Officials have 35 days to review site plan & application.
  - A. 7/12 Agenda: "Review of Application of W.H. Bennett, Inc. Date to be set for Hearing"
  - B. Then it is required: Town Officials have a 35 Day Review Period from July 12 (ending 8/17).
  - C. Public Hearing scheduled for 8/9 – short of required "Review Period".
4. Section 6.342 Procedures: Site Plan Approval requires "Specifically, a joint public hearing shall be held".
  - A. This Hearing on 8/9 is being conducted only by the Planning Board
  - B. Boards had 65 days from Bennett's 6/20 filing date (ending 8/24) to schedule joint Public Hearing with Zoning Board of Appeals.
  - C. This Public Hearing had to be scheduled the earliest 8/18 and latest on 8/23, not 8/9.

"Marked Objections by Residents"

Residents of Town believe that this specific commercial use, defined by the State Dept. of Energy Resources as "Large Scale Ground-mounted Solar Energy System (250 kW DC or greater)":

1. Is not legally listed, defined, or regulated in Town Zoning By-laws
2. Is being proposed in a Residential/ Agricultural zoning district
3. Requires consulting Town Counsel and professional planners to establish reasonable guidelines for this Commercial use, its legal complexities, and its impact on the general welfare of the Community and Town services.
4. Requires detail review through a Special Permit w/ Site Plan Approval
5. We request a temporary 1 year Moratorium on "Large Scale Ground-mounted Solar Energy Systems" in Residential/Agricultural district until the Town can enact reasonable zoning by-laws consistent with sound land use planning objectives and written requirements from Town Officials.



**Solar Array Plan**  
**Oak Bluffs, Mass.**  
 Prepared For  
**Solar Invictus 4, LLC / Bayes Norton Farm**  
 Scale: 1" = 40' February 5, 2018  
**Land Surveying & Civil Engineering**  
 12, Vineyard Haven, Mass. 0508-693-2781  
 www.ebhinc.net  
 MV 1109B



# Community Software Consortium

**Summary**

Parcel ID: 331/027.0-0023-0061.A FY: 2016 Community: **Westhampton**

Location: 0 SOUTH RD  
 Owner Name: TRACY, RICHARD W. & JANICE I.  
 Owner Name2:  
 Owner Address: 106 SOUTH ROAD  
 City: WESTHAMPTON State: MA Zip: 01027  
 Neighborhood: 1 Land Area: 136.50 acres  
 Use Code: 717-PROD-WOODLND Total Finished Area: 0 sqft  
 Tax Class: T Pct-Exempt-Land:  
 Sewer: Pct-Exempt-Bldg:  
 Water: Road Type: T  
 Road Condition: P

Photo (Click on Photo to Enlarge)

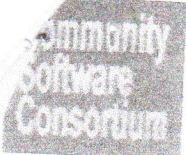
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Sketch (Click on Sketch to Enlarge)

## No Sketch Available

Total Value:	13,200	13,200
Building Value:	0	0
Land Value:	13,200	13,200
Market Land Value:	249,500	
Chapter Land Value:	13247	

Sale Price: Sale Date:  
 Arms Length Sale Code: Grantor:  
 Cert Doc: Book: Page:



Community Software Consortium

### Land Segments

Parcel ID: 331/027.0-0023-0061.A

Parcel Address: 0 SOUTH RD

8 Items found, displaying 1 to 8

Page 1 of 1

Land Segments

P	A	136.500	R1	1	132					
R	A	136.500	R1	1	132		1.000			73,000
R	A	136.500	R1	1	132		4.000			21,600
R	A	136.500	R1	1	132		15.000			30,000
R	A	136.500	R1	1	132		50.000			75,000
R	A	136.500	R1	1	132		66.500			49,875
R	A	136.500	R1	1	713	544500	12.500			2,250
R	A	136.500	R1	1	712	130680	3.000			2,406
R	A	136.500	R1	1	717	5270760	121.000			8,591

136.5  
713 AC  
Woodland

712 Vegetative 12.5  
713 Field 3.00  
717 Woodland 121.00  

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136.5 AC. WOODLAND



## Power Utility Substation

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### Market Description

The ability to provide reliable electrical power for residential and commercial use depends on an expansive infrastructure comprised of power generation facilities, transmission cables, substations, and local transformers. This infrastructure is instrumental in moving power from the generation facilities to the consumer.

### Electrical Power Generation

Years ago, power generation took place in large facilities utilizing several different power generation technologies. Power generation plants were often located along major rivers to harness the power of flowing water to rotate water turbines to generate electricity. Where major rivers weren't present, power plants used coal or natural gas to create steam to rotate steam turbines to generate electricity. Advancements in nuclear technology created power plants that used nuclear material to create steam to rotate steam turbines.

Recent developments in renewable energy sources with less impact on the environment have created a diverse array of energy producing sources including wind farms, solar farms, and even residential solar systems. While this diversity of power generation sources helps to reduce our dependency on the large power generation facilities, it has greatly impacted the power distribution infrastructure.

### Electrical Power Distribution

While we have grown accustomed to stable power being available 365 days per year, 24 hours a day, the right technology is required to meet that expectation. With all the different power generation sources available today, power line balancing has become a real challenge. Power generation sources need to be coordinated so that enough power is produced to meet demand, but that a surplus is not produced. Newer power generation technologies like wind and solar provide variable amounts of power based on environmental conditions. For example, abundant energy is produced by renewable energy sources on sunny or windy days, but not as much is produced on cloudy, still days, or at night. The output from traditional predictable power generation sources now must be adjusted based on the power generated from renewable energy sources.

Once the power is in the power system, "on the grid", the challenge becomes getting it from the generation source to the consumer. Power generation produces very high voltage power that can be transmitted over long distances. Tall power towers with high tension wires are used for this purpose. Since so much power is carried by these cables, it's important to control the

~~\*~~ Large Scale

1.3.1.2 Utility Connections - Reasonable efforts, as determined by the Site Plan Review Authority, shall be made to place all utility connections from the solar photovoltaic installation underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

1.3.1.3 Safety - The medium-scale ground-mounted solar energy system owner or operator shall provide a copy of the Site Plan Review application to the local fire chief. All means of shutting down the solar installation shall be clearly marked.

*Commentary: With regard to issues of access and safety, communities looking to adopt zoning for medium-scale solar energy systems should be aware of any unique local requirements that could apply. For example, if the fire department will want an Emergency Response Plan as part of approval, this should be folded into the review process as seamlessly as possible.*

1.3.1.4 Visual Impact – Reasonable efforts, as determined by the Site Plan Review Authority, shall be made to minimize visual impacts by preserving natural vegetation, screening abutting properties, or other appropriate measures.

1.3.1.5 Land Clearing, Soil Erosion and Habitat Impacts - Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of ground-mounted solar energy systems or as otherwise prescribed by applicable laws, regulations, and bylaws/ordinances.

Fencing

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*Commentary: As drafted, this model zoning does not require medium-scale ground mounted solar energy systems to be fenced, but this is something communities will want to consider. Regardless, many project proponents will find fencing prudent.*

Example 2 (Site Plan Review provisions for large-scale ground-mounted solar energy systems):

1.0 Site Plan Review

1.1 Applicability

1.1.1 Large-scale ground-mounted solar energy systems shall undergo Site Plan Review prior to construction, installation or modification as provided in this section.

1.2 Site Plan Document Requirements



Pursuant to the Site Plan Review process, the project proponent shall provide the following documents, as deemed applicable by the Site Plan Review Authority:

1.2.1 A site plan showing:

- (a) Property lines and physical features, including roads, for the project site;
- (b) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures;
- (c) Blueprints or drawings of the solar energy system signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts showing the proposed layout of the system, any potential shading from nearby structures, the distance between the proposed solar collector and all property lines and existing on-site buildings and structures, and the tallest finished height of the solar collector;
- (d) One or three line electrical diagram detailing the solar photovoltaic installation, associated components, and electrical interconnection methods, with all Massachusetts Electric Code (527 CMR 12.00) compliant disconnects and overcurrent devices;
- (e) Documentation of the major system components to be used, including the panels, mounting system, and inverter;
- (f) Name, address, and contact information for proposed system installer;
- (g) Name, address, phone number and signature of the project proponent, as well as all co-proponents or property owners, if any;
- (h) The name, contact information and signature of any agents representing the project proponent; and
- (i) Zoning district designation for the parcel(s) of land comprising the project site.

*If the following are not addressed in existing site plan review regulations, then the community may wish to include them:*

- (j) *Locations of active farmland and prime farmland soils, wetlands, permanently protected open space, Priority Habitat Areas and BioMap 2 Critical Natural Landscape Core Habitat mapped by the Natural Heritage & Endangered Species Program (NHESP) and "Important Wildlife Habitat" mapped by the DEP.*
- (k) *Locations of floodplains or inundation areas for moderate or high hazard dams;*
- (l) *Locations of local or National Historic Districts;*

- 1.2.2 Documentation of actual or prospective access and control of the project site (see also Section 1.3.1.1);
- 1.2.3 An operation and maintenance plan (see also Section 1.3.1.2);
- 1.2.4 ~~Proof of liability insurance~~ and
- 1.2.5 A public outreach plan, including a project development timeline, which indicates how the project proponent will meet the required Site Plan Review notification procedures and otherwise inform abutters and the community.

*Commentary: Provision 1.2.6 above should reference the municipality's existing Site Plan Review public and/or abutter notification procedures if applicable. For example, a community may require projects that are subject to Site Plan Review to notify all property owners within 100 feet of the project site.*

### 1.3 Site Plan Review Design and Operation Standards

#### 1.3.1 Standards for large-scale ground-mounted solar energy systems

1.3.1.1 **Site Control** - The project proponent shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed solar energy system.

1.3.1.2 **Operation & Maintenance Plan** - The project proponent shall submit a plan for the operation and maintenance of the large-scale ground-mounted solar energy system, which shall include measures for maintaining safe access to the installation, stormwater controls, as well as general procedures for operational maintenance of the installation.

1.3.1.3 **Utility Notification** - No grid-intertie photovoltaic system shall be installed until evidence has been given to the Site Plan Review Authority that the owner has submitted notification to the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.

1.3.1.4 **Lighting** - Lighting of large-scale ground-mounted solar energy systems shall be consistent with local, state and federal law. Lighting of other parts of the installation, 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 energy system shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.

1.3.1.5 Signage - Signs on large-scale ground-mounted solar energy systems shall comply with a municipality's sign bylaw/ordinance. A sign consistent with a municipality's sign bylaw/ordinance shall be required to identify the owner and provide a 24-hour emergency contact phone number. Solar energy systems shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the solar energy system.

1.3.1.6 Utility Connections - Reasonable efforts, as determined by the Site Plan Review Authority, shall be made to place all utility connections from the solar photovoltaic installation underground, depending on appropriate soil conditions, shape, and topography of the site and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

1.3.1.7 Emergency Services - The large-scale ground-mounted solar energy system 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 energy system shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.

*Commentary: With regard to issues of access and safety, communities looking to adopt zoning for large-scale solar energy facilities should be aware of any unique local requirements that could apply.*

1.3.1.8 Land Clearing, Soil Erosion and Habitat Impacts - Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of solar energy system or otherwise prescribed by applicable laws, regulations, and bylaws/ordinances.

### 1.3.2 Monitoring and Maintenance


1.3.2.1 Solar Energy System Installation Conditions - The large-scale ground-mounted solar energy system owner or operator shall maintain the facility 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, Emergency Management Director, and Emergency Medical Services. The owner or operator

shall be responsible for the cost of maintaining the solar energy system and any access road(s), unless accepted as a public way.

1.3.2.2 Modifications - All material modifications to a large-scale ground-mounted solar energy system made after issuance of the required building permit shall require approval by the Site Plan Review Authority.

### 1.3.3 Abandonment or Decommissioning

#### 1.3.3.1 Removal Requirements



Any large-scale ground-mounted solar energy system which has reached the end of its useful life or has been abandoned consistent with Section 1.3.3.2 of this bylaw/ordinance shall be removed. The owner or operator shall physically remove the installation no more than 150 days after the date of discontinued operations. The owner or operator shall notify the Site Plan Review Authority by certified mail of the proposed date of discontinued operations and plans for removal. Decommissioning shall consist of:

- (a) Physical removal of all solar energy systems, structures, equipment, security barriers and transmission lines from the site.
- (b) Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
- (c) Stabilization or re-vegetation of the site as necessary to minimize erosion. The Site Plan Review Authority may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

#### 1.3.3.2 Abandonment

Absent notice of a proposed date of decommissioning or written notice of extenuating circumstances, the large-scale ground-mounted solar energy system shall be considered abandoned when it fails to operate for more than one year without the written consent of the Site Plan Review Authority. If the owner or operator of the solar energy system fails to remove the installation in accordance with the requirements of this section within 150 days of abandonment or the proposed date of decommissioning, the town retains the right, after the receipt of an appropriate court order, to enter and remove an abandoned, hazardous, or decommissioned large-scale ground-mounted solar energy system. As a condition of Site Plan approval, the applicant and landowner

shall agree to allow entry to remove an abandoned or decommissioned installation.

*Commentary: Recognizing that other remedies, such as a tax lien, are available to communities in the event an abandoned facility is legitimately putting public safety at risk this model zoning does not require the provision of surety to cover the cost of removal in the event the municipality must remove the installation and remediate the landscape. Communities can, however, require surety in circumstances where a valid planning purpose for doing so exists.*

*Commentary: As drafted, this model zoning does not require large-scale ground mounted solar energy systems to be fenced, but this is something communities will want to consider. Regardless, many project proponents will find fencing prudent.*

Example 3 (Site Plan Review provisions for roof-mounted and small-scale ground-mounted solar energy systems as part of a larger project that triggers Site Plan Review):

1.0 Site Plan Review

1.1 Site Plan Document Requirements

1.1.1 Requirements for Roof-Mounted and Small-Scale Ground-Mounted Solar Energy Systems - Where these solar energy systems may be accessory to a use allowed through Site Plan Review, the Site Plan Review shall include review of their adequacy, location, arrangement, size, design, and general site compatibility.

1.1.1.1 Roof-Mounted Solar Energy Systems – For all roof-mounted systems, the applicant shall provide:

- (a) The shortest distance between the solar collector and all edges of the roof.
- (b) The distance between the solar collector and any other existing rooftop features such as chimneys, spires, access points, etc.
- (c) The height of the solar collector both from finished grade and, where applicable, from the finished surface of the roof.

1.1.1.2 Small-Scale Ground-Mounted Solar Energy Systems – For all ground-mounted systems, the applicant shall provide:

- (a) The distance between the proposed solar collector and all property lines and existing on-site buildings and structures.
- (b) The tallest finished height of the solar collector.
- (c) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures.

1.1.1.3 System Components – The Plan must include documentation of the major system components to be used, for example the panels, mounting system, and inverter.

1.1.1.4 Installer Details – The Plan must include the name, address, and contact information for proposed system installer.

## 1.2 Site Plan Review Design Standards

### 1.2.1 Standards for roof-mounted and small-scale ground-mounted solar energy systems

1.2.1.1 Utility Notification - No grid-intertie photovoltaic system shall be installed until evidence has been given to the Site Plan Review Authority that the owner has submitted notification to the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.

1.2.1.2 Emergency Access - Solar energy systems shall be located in such a manner as to ensure emergency access to the roof, provide pathways to specific areas of the roof, provide for smoke ventilation opportunities, and provide emergency egress from the roof.

(a) For buildings with pitched roofs, solar collectors shall be located in a manner that provides a minimum of one three-foot wide clear access pathway from the eave to the ridge on each roof slope where solar energy systems are located as well as one three-foot smoke ventilation buffer along the ridge.

(b) Residential rooftops that are flat shall have a minimum three-foot wide clear perimeter and commercial buildings that are flat shall have a minimum four-foot wide clear perimeter between a solar energy system and the roofline, as well as a three-foot wide clear perimeter around roof-mounted equipment such as HVAC units.

(c) To the extent practicable, the access pathway shall be located at a structurally strong location on the building (such as a bearing wall).

*Commentary: Building and Fire Department personnel should be involved in the development of emergency access standards, and any zoning standards that are adopted should be consistent with local building and fire codes.*

1.2.1.3 Safety – No roof-mounted solar energy system shall be located in a manner that would cause the shedding of ice or snow from the roof into a porch, stairwell or pedestrian travel area.

## **Special Permits**

*Commentary: Special Permits are addressed in Chapter 9 of the Zoning Act, and most Massachusetts communities have regulations pertaining to them within their zoning bylaw or ordinance. Below is model language for municipalities requiring special permits for large-scale ground-mounted solar energy systems. It is intended to be adopted and implemented alongside Site Plan Review language for large-scale ground-mounted systems included as Example 2 in this model zoning. Rather than include separate special permit standards applicable specifically to large-scale ground-mounted solar energy systems, this language simply directs that a permit be issued pursuant to the already established special permit bylaw/ordinance of the community.*

*Municipalities will, however, want to audit their special permit language, especially the approval standards, for compatibility with the siting of large-scale ground-mounted solar energy systems. Such systems should have far lower impacts than commercial or industrial uses that often require issuance of special permit, and communities should keep in mind the requirement in Chapter 40A Section 3 that any regulations pertaining to solar energy systems be reasonable.*

### **1.0 Special Permit with Site Plan Review**

#### **1.1 Special Permit Requirements**

- 1.1.1 Where required a special permit shall be issued prior to construction, installation or modification of any large-scale ground-mounted solar energy system. The special permit granting authority shall include as part of its special permit review and proceedings all the provisions and requirements of the Site Plan Review standards applicable to large-scale ground-mounted solar energy systems.

### **Pre-Existing Non-Conforming Uses and Structures**

*Commentary: Alterations, extensions and structural changes to pre-existing non-conforming uses and structures (e.g., existing buildings that do not meet the dimensional requirements of the Zoning Bylaw/Ordinance) that intensify non-conformities or result in additional non-conformities may not be allowed beyond a certain threshold or may require a Special Permit pursuant to the local Zoning Bylaw/Ordinance. It is recommended that the installation of roof-mounted or small-scale ground-mounted solar energy systems associated with pre-existing non-conforming uses or structures be exempt from this requirement. An example provision is provided below. Communities not comfortable with providing this exemption to small-scale ground mounted systems due to their potential to be located on very small lots may wish to apply Site Plan Review or continue to require a Special Permit where this can be justified to protect public health, safety, or welfare. As to roof mounted systems on non-conforming properties, given the exemption afforded solar energy systems, DOER believes it would be unreasonable to disallow them or require a Special Permit even when installation would exacerbate a pre-existing building height non-conformity.*

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Example:

1.0 Pre-Existing Non-Conforming Uses and Structures

1.1 Improvements that do not change the use or the basic exterior characteristics or appearance of the building or structure are allowed. Such improvements include but are not limited to the following:

1.1.1 Installation or replacement of solar energy systems.

**Historic Districts**

*Commentary: Many communities in the Commonwealth have adopted Local Historic Districts to protect and preserve buildings, landscapes and neighborhoods of historic significance. In recent years, conflict has occasionally arisen about the installation of solar energy systems within these districts on historic buildings and structures, since some argue that they have adverse impacts on the visual appearance and integrity of the buildings and structures.*

*As described in the DOER Policy Guidance for Regulating Solar Energy Systems, Local Historic District Commissions must consider the policy of the Commonwealth to encourage the use of solar energy systems and to protect solar access when considering issuance of a certificate of appropriateness for a solar energy system. However, thoughtful design guidelines can help ensure that solar energy systems are sited while the goals of historic preservation continue to be achieved.*

*Design guidelines can require that solar energy systems not be visible from public areas, to the greatest extent practicable. When it is not feasible (either physically or economically) to locate solar energy systems out of the public eye, solar energy systems can be required to be designed to certain architectural standards (e.g., building-integrated, use of solar shingles) to the greatest extent practicable. However, these options may be infeasible as well due to the high cost and low performance of many of these technologies. To meet these challenges, Local Historic District Commissions are encouraged to write design guidelines that support the development of solar energy systems and are sensitive to the historic preservation goals of the Commission.*



**Model Zoning for the Regulation of Solar Energy Systems<sup>1</sup>**  
Department of Energy Resources  
Massachusetts Executive Office of Energy and Environmental Affairs  
December 2014

*This model zoning and accompanying Guidance were prepared to assist Massachusetts cities and towns in establishing reasonable standards to facilitate development of solar energy systems. These systems include small-, medium- and large-scale as well as both ground-mounted and roof-mounted installations.<sup>2</sup> The model zoning language provided here is not intended for adoption precisely as it is written. Communities will need to carefully consider how this language may be modified to suit local conditions and where it should be inserted into an existing Zoning Bylaw/Ordinance. Further, it is highly recommended that any language adapted from this model be reviewed by municipal counsel prior to adoption.*

*As small-, medium-, and large-scale ground-mounted and roof-mounted solar energy systems become more prevalent in Massachusetts, many communities are attempting to regulate the installation of these systems through their Zoning Bylaw/Ordinance. Developing these regulations has been particularly challenging for a number of reasons. Most notably, the Massachusetts General Laws contains several provisions that specifically address the ability of local governments to regulate solar energy systems and/or to protect solar access from development or vegetation (shading) on adjacent properties. While the language within Chapter 40A Section 3 states that a local government may not prohibit these uses, it does say they cannot be “unreasonably regulated” without providing guidance on what that particular phrase means. The Solar Energy Systems Policy Guidance, which accompanies this model zoning and succeeding sections of this document provide more explanation regarding the implications of the statutes on this issue and its significance to local zoning.*

*Unlike model bylaws/ordinances typically developed by the Commonwealth, the regulatory language provided here is not packaged as a “stand-alone” section of a Zoning Bylaw/Ordinance. With ground-mounted and roof-mounted solar energy systems, the statutory framework and “accessory” nature of some of these installations lend themselves to a different approach. This model zoning therefore assumes that municipalities will have many “typical” sections within their Zoning Bylaw/Ordinance and that several of these sections would be amended to address this issue. For the purposes of this model zoning, the Bylaw/Ordinance sections that are amended include:*

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<sup>1</sup> This material is based upon work supported by the U.S. Department of Energy under Award Number DE-EE0005692. This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

<sup>2</sup> This material was prepared by the Horsley Witten Group.

*The Definitions Section;  
Allowable Uses;  
Dimensional Requirements; and  
Site Plan Review.*

*There is also further discussion intended to help communities regulate these systems in the context of a Local Historic District.*

## **Definitions**

*Commentary: Within a Zoning Bylaw/Ordinance, the Definitions Section usually stands alone. Definitions are also sometimes included as a sub-section within other sections of the Zoning Bylaw/Ordinance. For example, terms related to the protection of water resources may be included in a water resource protection overlay district section. We recommend that the following terms be added to the general Definitions Section of the Zoning Bylaw/Ordinance.*

Photovoltaic System (also referred to as Photovoltaic Installation): An active solar energy system that converts solar energy directly into electricity.

Rated Nameplate Capacity: The maximum rated output of electric power production of the photovoltaic system in watts of Direct Current (DC).

Solar Access: The access of a solar energy system to direct sunlight.

Solar Collector: A device, structure or a part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy.

Solar Energy: Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

*Commentary: While it is anticipated that installed solar energy systems will most frequently be photovoltaic, this model zoning uses the statutory definition of a solar energy system, which is broader and permits the installation of solar thermal systems as well.*

Solar Energy System: A device or structural design feature, a substantial purpose of which is to provide daylight for interior lighting or provide for the collection, storage and distribution of solar energy for space heating or cooling, electricity generation, or water heating.

Solar Energy System, Active: A solar energy system whose primary purpose is to harvest energy by transforming solar energy into another form of energy or transferring heat from a collector to another medium using mechanical, electrical, or chemical means.

Solar Energy System, Grid-Intertie: A photovoltaic system that is connected to an electric circuit served by an electric utility.

Solar Energy System, Ground-Mounted: An Active Solar Energy System that is structurally mounted to the ground and is not roof-mounted; may be of any size (small-, medium- or large-scale).

Solar Energy System, Large-Scale: An Active Solar Energy System that occupies more than 40,000 square feet of surface area (equivalent to a rated nameplate capacity of about 250kW DC or greater).

Solar Energy System, Medium-Scale: An Active Solar Energy System that occupies more than 1,750 but less than 40,000 square feet of surface area (equivalent to a rated nameplate capacity of about 10 - 250 kW DC).

Solar Energy System, Off-Grid: A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility.

Solar Energy System, Passive: A solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.

Solar Energy System, Roof-Mounted: An Active Solar Energy System that is structurally mounted to the roof of a building or structure; may be of any size (small-, medium- or large-scale).

Solar Energy System, Small-Scale: An Active Solar Energy System that occupies 1,750 square feet of surface area or less (equivalent to a rated nameplate capacity of about 10 kW DC or less).

Solar Thermal System: An Active Solar Energy System that uses collectors to convert the sun's rays into useful forms of energy for water heating, space heating, or space cooling.

## Use Regulations

*Commentary: Within a Zoning Bylaw/Ordinance, the Use Regulations describe which land uses are allowed within different zoning districts of the community, and which permits are required. The Use Regulations typically include a Use Table and/or a narrative description of the principal and accessory uses that are allowed, prohibited and/or allowed only through a Special Permit within each zoning district.*

*Pursuant to Chapter 40A Section 3, a Massachusetts municipality may not prohibit or unreasonably regulate solar energy systems except where necessary to protect public health, safety or welfare. Therefore, although these systems must be allowed within the community, they may be regulated where necessary to protect public health, safety or welfare through other provisions of the Zoning Bylaw/Ordinance. For example, these systems will still need to meet dimensional regulations and other performance standards necessary to protect public health, safety or welfare. In addition, a Site Plan Review process may be used to collect information that will ensure compliance with the performance standards in the Zoning Bylaw/Ordinance. Where some communities include Design Review in their permit processes, these communities will need to balance their desire for certain design objectives with the Commonwealth's protection of solar energy systems. Finally, as drafted this model zoning requires a special permit for a large-scale ground-mounted facility in a residential district and prohibits such systems in another residential district. While a special permit is discretionary, and language expressing uncertainty and cautioning communities about the lack of case law regarding Chapter 40A Section 3 has been included, the Attorney General's Office has approved local*

zoning using this permitting mechanism. While DOER cannot offer a definitive interpretation, limited use of special permits when applied to the largest of solar systems, especially when these systems are allowed elsewhere by right, may well be reasonable regulation. In DOER's view, given the plain language of the statute, it is prudent to allow opportunity to site all scales of solar energy systems somewhere in the community. These provisions are described in more detail in the following sections. A more detailed discussion of DOER's understanding of Chapter 40A Section 3 is provided in the Policy Guidance for Regulating Solar Energy Systems that serves as a companion piece to this regulatory guidance.

As a cautionary note, while regulating aesthetics can arguably be considered a matter of protecting public welfare, attempting to place restrictions on materials, setbacks or height, and other similar items, as related to aesthetics, can create roadblocks to actual installation. It is therefore not recommended that communities regulate aesthetics of solar energy systems, or that they do so very cautiously, due to the strong statutory protections in Chapter 40A Section 3.

Two examples are provided in this section for how roof-mounted, small-scale ground-mounted, medium-scale ground-mounted, and large-scale ground-mounted solar energy systems can be incorporated into a municipality's Use Regulations. In these examples, roof-mounted solar energy systems, regardless of size, are allowed as-of-right throughout the community. As-of-right siting means that development may proceed without the need for a Special Permit, variance, amendment, waiver, or other discretionary approval. These projects cannot be prohibited, and can be built once a building permit has been issued by the inspector of buildings, building commissioner or local inspector.

For ground-mounted systems, there is a distinction between how small-scale, medium-scale and large-scale systems are treated and where each are allowed as-of-right, via site plan review, or by special permit. The model zoning allows small-scale ground-mounted systems as-of-right throughout the community. These are of a size that would service a house, small businesses, or small municipal building.

The model zoning allows medium-scale ground-mounted systems as-of-right in all districts except residential zoning districts; in these districts Site Plan Review is required. This means that medium-scale ground-mounted systems cannot be prohibited, and that DOER considers Site Plan Review reasonable regulation. Site Plan Review is discussed in more detail later in this document, but in general it establishes criteria for the layout, scale, appearance, safety, and environmental impacts of certain types and/or scales of development. Typically, site plan approval must be obtained before the building permit is issued. Since medium-scale ground-mounted systems can reach up to approximately an acre in size, DOER believes it is reasonable and appropriate to provide more regulatory scrutiny via Site Plan Review for these projects in residential districts to protect public health, safety, or welfare.

As drafted, the model zoning requires Site Plan Review for large-scale ground-mounted systems within most zoning districts, a special permit in one residential district, and prohibits such systems in another residential district. However, communities should remember that the language of the zoning exemption for solar energy systems is imprecise. While some communities already require a Special Permit to install a large-scale ground mounted solar facility, and/or

restrict them to certain districts, it is not clear whether these regulations are consistent with the Chapter 40A Section 3 mandate that they be reasonable and necessary to protect public health, safety, or welfare.

### **Connection to the Massachusetts Green Communities Designation and Grant Program**

Recognizing the uncertainty around how regulations may or may not be interpreted as reasonable, DOER allows communities to meet Green Communities Criterion One by zoning for the as-of-right installation of a solar facility of at least an acre in size in a designated location. For more information on the Green Communities Designation and Grant Program, please visit: <http://www.mass.gov/eea/energy-utilities-clean-tech/green-communities/>.

### **Siting Preferences**

Where a solar facility is sited, as well as placement on the site once selected, is an important consideration, particularly in regard to large-scale ground mounted facilities. DOER strongly discourages locations that result in significant loss of land and natural resources, including farm and forest land, and encourages rooftop siting, as well as locations in industrial and commercial districts, or on vacant, disturbed land. Significant tree cutting is problematic because of the important water management, cooling, and climate benefits trees provide.

In regard to farm properties, rooftops are preferable. If roof space is inadequate non-productive, non-arable agricultural land is the second choice. Should this also prove infeasible or inadequate a dual use of land design concept could preserve productive farmland by continuing crop production underneath high-mounted and well spaced panels. Finally, if none of these are feasible or they are inadequate the least productive land should be used first to minimize the loss of productive food/crop land.

### **Overlay Zoning Districts**

Overlay zoning districts are one zoning approach that could be used to permit solar energy systems, and in ways not allowed under the base zoning districts. For example, the model zoning as drafted requires Site Plan Review for medium-scale ground mounted solar energy systems in residential districts. An overlay district could be used to permit such facilities without Site Plan Review in a portion of these residential districts where Site Plan Review is deemed unnecessary, while retaining the review for the balance of the districts.

In addition, some communities may wish to conduct a feasibility analysis to determine where large-scale solar energy systems are most appropriate within the municipality and use an overlay zoning district approach to encourage the siting of facilities in the most feasible locations. Once an area has been established through a thoughtful and analytical process, the municipality could enact overlay zoning legislation to prioritize these areas for large-scale solar energy systems. Many Massachusetts communities have already taken this approach through adoption of a large-scale ground-mounted solar overlay district, often based on DOER's [Model As-of-Right Zoning Bylaw: Allowing Use of Large-Scale Ground-Mounted Solar Photovoltaic Installations](#).

## Special Permits

*Commentary: Special Permits are addressed in Chapter 9 of the Zoning Act, and most Massachusetts communities have regulations pertaining to them within their zoning bylaw or ordinance. Below is model language for municipalities requiring special permits for large-scale ground-mounted solar energy systems. It is intended to be adopted and implemented alongside Site Plan Review language for large-scale ground-mounted systems included as Example 2 in this model zoning. Rather than include separate special permit standards applicable specifically to large-scale ground-mounted solar energy systems, this language simply directs that a permit be issued pursuant to the already established special permit bylaw/ordinance of the community.*

*Municipalities will, however, want to audit their special permit language, especially the approval standards, for compatibility with the siting of large-scale ground-mounted solar energy systems. Such systems should have far lower impacts than commercial or industrial uses that often require issuance of special permit, and communities should keep in mind the requirement in Chapter 40A Section 3 that any regulations pertaining to solar energy systems be reasonable.*

Example:

1.0 Pre-Existing Non-Conforming Uses and Structures

1.1 Improvements that do not change the use or the basic exterior characteristics or appearance of the building or structure are allowed. Such improvements include but are not limited to the following:

1.1.1 Installation or replacement of solar energy systems.

**Historic Districts**

*Commentary: Many communities in the Commonwealth have adopted Local Historic Districts to protect and preserve buildings, landscapes and neighborhoods of historic significance. In recent years, conflict has occasionally arisen about the installation of solar energy systems within these districts on historic buildings and structures, since some argue that they have adverse impacts on the visual appearance and integrity of the buildings and structures.*

*As described in the DOER Policy Guidance for Regulating Solar Energy Systems, Local Historic District Commissions must consider the policy of the Commonwealth to encourage the use of solar energy systems and to protect solar access when considering issuance of a certificate of appropriateness for a solar energy system. However, thoughtful design guidelines can help ensure that solar energy systems are sited while the goals of historic preservation continue to be achieved.*

*Design guidelines can require that solar energy systems not be visible from public areas, to the greatest extent practicable. When it is not feasible (either physically or economically) to locate solar energy systems out of the public eye, solar energy systems can be required to be designed to certain architectural standards (e.g., building-integrated, use of solar shingles) to the greatest extent practicable. However, these options may be infeasible as well due to the high cost and low performance of many of these technologies. To meet these challenges, Local Historic District Commissions are encouraged to write design guidelines that support the development of solar energy systems and are sensitive to the historic preservation goals of the Commission.*