Model Ordinance for Smaller-Scale Solar Energy Projects in Virginia *(By Right Permitting)*

December 21, 2012

BACKGROUND:

This Model Solar Ordinance provides suggested language for consideration by localities in framing their own local solar ordinance for smaller-scale solar energy projects. It was developed by the Local Government Outreach Group (LOG), an informal group of stakeholders with representation from local governments, developers, academia, and environmental organizations, whose work was facilitated by the Department of Environmental Quality (DEQ). Preliminary work on the model ordinance was performed by DEQ staff with assistance and advice from the Solar Technical Group. When utilizing this Model Ordinance, please also refer to the document, "Introduction: DEQ's Local Government Outreach for Renewable Energy," which can be found at http://www.deq.virginia.gov/Programs/RenewableEnergy/LocalGovernmentOutreach.aspx.

a. Sources for suggested provisions in this model include the Fairfax County, VA Zoning Ordinance, Henrico County, VA Zoning Ordinance, Accomack County (Proposed) VA Zoning District Amendment, Lexington, VA Solar Tax Exemption Ordinance, Harrisonburg, VA Solar Tax Exemption Ordinance and Northampton County, VA Zoning Ordinance. Out-of-state sources include the Township of Delaware, NJ Ordinance, the Kent County, MD Solar Ordinance, the Lancaster, PA Solar Ordinance, the Monroe County, PA Solar Ordinance, the Pottstown, PA Solar Ordinance, the Minnesota Environmental Quality Board Model Solar Ordinance, the Laramie, Wyoming Solar Ordinance, the Ashland, Oregon Solar Ordinance, and a report from the Interstate Renewable Energy Council.

b. To the extent practicable, explanatory comments and issues of concern are noted in footnotes. The use of **[brackets]** around certain provisions (1) indicates points at which a local government should supply locality-specific information or (2) signals a decision point at which a local government may adopt the suggested provision and/or may wish to give special consideration to local circumstances and preferences in framing the provision.

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1. TITLE

This ordinance shall be known as the **[Smaller-Scale]** Solar Energy Projects Ordinance for **[locality]**.[1]

2 PURPOSE[2]

The purpose of this ordinance is to provide for the siting, development, and decommissioning of smaller-scale solar energy projects in **[locality]**, subject to reasonable conditions that promote and protect the public health, safety and welfare of the community while promoting development of renewable energy resources.

3 DEFINITIONS

"Applicant" means the person or entity who submits an application to the locality for a permit to install a solar energy project under this ordinance.

"Disturbance zone" means the area within the site directly impacted by construction and operation of the solar energy project.

"Integrated PV" means photovoltaics incorporated into building materials, such as shingles.

"Photovoltaic" or "PV" means materials and devices that absorb sunlight and convert it directly into electricity.

"Property Owner" means the person or entity who owns the property on which the solar energy project is sited. The property owner may or may not be the same person or entity as the project owner.

"Project Owner" means the person or entity who owns all or a portion of a solar energy project.

"Rated Capacity" means the maximum capacity of a solar energy project based on the sum total of each photovoltaic system's nameplate capacity.

[1] **Title.** The term "smaller-scale" is offered here to describe projects addressed by this model ordinance. Local governments are urged to utilize terminology that best communicates the scope of their particular solar ordinances. (Note: This model ordinance generally attempts to be consistent with the substance, terminology, and format of the state's Small Renewable Energy Projects Act of 2009. Since that statute defines "small" to include projects with a rated capacity up to 100 megawatts, this model ordinance avoids using the term "small." Outside of the state statute, few people think of 100 MW as small.)

[2] **Purpose.** The statement of purpose is based on similar provisions found in existing ordinances and models. The phrase "promoting development of renewable energy sources" conforms with Virginia's Energy Policy (specifically, §67-103 of the Code of Virginia). The legal requirements of this Energy Policy are discussed in the companion document, "Introduction: DEQ's Local Government Outreach for Renewable Energy," which appears on DEQ's website along with this model ordinance. The Energy Policy requires, among other things, that renewable energy be encouraged.

"Site" means the area containing a solar energy project.

"Solar Energy Project[3], **[smaller-scale],** "Solar Energy Project," or "Project" means a renewable energy project that

either

(a) generates electricity from sunlight, consisting of one or more PV systems and other appurtenant structures and facilities within the boundaries of the site,

or

(b) utilizes sunlight as an energy source to heat or cool buildings, heat or cool water, or produce electrical or mechanical power by means of any combination of collecting, transferring, or converting solar-generated energy,[4]

and

(c) meets at least one of the following criteria: has a disturbance zone equal to or less than **[two acres]**, is mounted on or over a building or parking lot or other previously-disturbed area[5], or utilizes integrated PV only.[6]

4 PERMITTING APPLICATIONS AND PROCEDURES[7]

[3] The term "system" may be preferable here over the term "project" to denote the small-scale nature of the project, in accordance with other localities' ordinances. While this is a departure from the language that is found in Virginia's Small Renewable Energy Projects Act, the use of the term "system" rather than "project" may serve as a helpful reminder that the vast majority of these systems will not be subject to the DEQ's permit-by-rule (which only provides substantive requirements for projects with a rated capacity greater than 5 megawatts). Other localities have used the term "solar energy equipment." Also, members of the Solar Technical Group noted that local officials might want to define what they mean by "previously-disturbed area." This term may have different connotations in different settings.

[4] The definition of solar project was originally drafted to be consistent with the state statute and regulation; however, stakeholders pointed out that some solar projects generate thermal energy rather than electricity. Although the state law only includes projects that generate electricity (*see* subparagraph a), local ordinances should encompass thermal projects as well (*see* subparagraph b).

[55] **Previously Disturbed.** Members of the Solar Technical Group suggested that local officials may wish to define what they mean by "previously-disturbed area." This term may have different connotations in different settings. If a local government does not wish for agricultural land to be deemed "previously disturbed" because trees were removed, then it may want to define "previously disturbed" along the following lines: "Has undergone mechanical land-forming, construction, or demolition activities within the past 50 years."

[6] Localities may want to consider framing the Smaller-Scale Solar Ordinance to complement the scope of the Larger-Scale Solar Ordinance. That is, if the locality's Smaller-Scale ordinance addresses solar projects with a disturbance zone of 2 acres and less, then the Larger-Scale Ordinance could address projects larger than these specifications, as well as projects that do not meet any of the listed categorical criteria (*e.g.*, mounted on a building).

[7] **By Right Permitting (general background).** Land uses that are permitted "by right" are those that can be approved administratively by the staff because the zoning ordinance allows it. By right development is regulated by the zoning ordinance and by the subdivision ordinance. Approval is a ministerial act typically carried out by the Zoning Administrator who implements the law or policy by applying the facts in a particular case. When the requirements of the law or policy are satisfied, approval is required. The zoning administrator has no discretion to deny an application. **This model ordinance recommends using by right permitting for smaller-scale solar energy projects, as those projects are defined in this document.**

Accessory Use, Permit Required. Alternatively, some localities require the applicant to submit an application for a zoning **permit for accessory use**. In Pottstown, PA, for example, the Planning Commission may recommend approval or recommend alternatives, in which case the applicant must formally acknowledge receipt of the recommendations. The zoning officer may then approve or deny the application, or may approve the application with reasonable conditions imposed to safe-

By Right Approval:[8]

a. All smaller-scale solar energy projects shall require administrative plan approval by municipal zoning officials.

b. Applications that meet the requirements of this ordinance, and do not require a conditional use permit, shall be granted administrative approval by the zoning official and shall not require **[Planning Commission]** review. Plan approval does not indicate compliance with Building Code or Electric Code.

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guard the public health, safety and welfare. The zoning permit requirement is waived for (1) the installation of one solar panel with a total area of less than eight square feet; and (2) repair and replacement of existing solar energy equipment.

Accessory Use, No Permit Necessary: Alternatively, some counties (at least two of which are in Virginia) allow the installation of solar devices **for accessory use, with no zoning permit requirement.**

> Henrico County, VA allows solar panels as an accessory use ("A use or structure subordinate to the principal use or structure on the same lot and serving a purpose customarily incidental thereto.").
>
> Similarly, Fairfax County, VA implicitly allows solar panels in any zoning district "in connection with, incidental to, and on the same lot with a principal use or structure which is permitted within such district."

Note: Provisions from some localities stipulate that energy generated by solar projects are **"primarily for onsite use,"** or words to that effect. It is **not** recommended that localities in Virginia include such language. One of the state's major utilities is undertaking a project whereby the company will lease roof space on existing buildings on which to install solar panels; however, the electricity generated will go directly to the grid and not be utilized by the host building. If the "onsite use" language is included, then an ordinance may not cover solar projects that are part of the utility's project. Further, members of the Solar Technical Group did not believe that the identity of the end user of the solar-generated power was a relevant issue to be included in a zoning ordinance.

[8] The requirements of this subsection are largely based on the model developed by the Minnesota Environmental Quality Board.

According to a report by the Interstate Renewable Energy Council, Inc., the following three types of application review processes are commonly employed by localities. Localities are encouraged to review the examples provided by the IREC and, as far as is practicable, to develop streamlined and solar-friendly application review processes in compliance with Virginia's Energy Policy.

> **In-Person Submittal with Later Review:** The applicant delivers the application and supporting documentation to the building department in person, and may meet with a plan-checker to go over the plans, but full review does not happen until a later date. Often the applicant needs to return to the building department to obtain the approval documentation. In IREC's experience, this is the most common submittal and review process.
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> **Over-the-Counter Submittal and Review:** The applicant submits the application and any supporting documentation in person at the building department office and plan review occurs at that time, allowing the applicant to leave with the permit if approved. Over-the-counter submittal reflects an improvement in the permit submittal and review process where it can be reliably done without long wait times. However, it is typically available only for certain projects, and only in a limited number of jurisdictions.
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> **Online or Electronic Submittal and Review:** In its most complete form, the application is filled in online, plans are submitted electronically, comments from the staff are provided and tracked electronically, and notification of permit approval is provided online or via email. A full online process is still relatively uncommon, though some jurisdictions have implemented a partial-online or electronic process.

c. Applicant shall include in plan applications scaled horizontal and vertical (elevation) drawings. The drawings must show the location of the project on the building or on the property for a ground-mounted project, including the property lines and setback lines.

d. Before any construction can commence on any solar energy project, the property owner, project owner, or other appropriate entity must formally acknowledge that he/she is the responsible party for maintaining the solar energy project.[9]

5 LOCATION, APPEARANCE, AND OPERATION[10]

a. Visual Appearance[11]

i. If a Solar Energy Project is mounted on a principal building or accessory building, the project may not exceed the maximum principal building height or accessory building height specified for the building type in the underlying zoning district.[12]

ii. A ground-mounted Solar Energy Project shall not exceed the maximum building height for accessory buildings.[13]

iii. **[Screening** – provision not recommended**]**[14]

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[9] Monroe County, PA.

[10] **General Siting Requirements.** There are a variety of zoning considerations related to nuisance, appearance, and public safety.

[11] The provisions listed here reflect some of the more commonly utilized provisions relating to the visual appearance of a solar energy project, but the LOG encourages localities to revise them as they see fit.

[12] Provision based on Monroe County, PA.

Alternative: A roof-mounted Solar Energy Project that is to be mounted on a flat roof may be angled to achieve maximum sun exposure but shall not exceed [5] feet above the roof. Based on Township of Delaware, NJ. The Solar Technical Group discussed this five-foot exception at some length, but decided against recommending it. In some localities, exceeding a zone's "maximum building height" would ordinarily render a project ineligible for by-right permitting. The Group was concerned that a by-right exception to what is already by-right permitting would raise a red flag in local governments and open the door to more exceptions. Meanwhile, the number of buildings that have the practical solar roofline at the maximum height is likely small, as many buildings have mechanical penthouses at the maximum, so the usable flat roof beneath is available for solar installations. In addition, many buildings have parapets that meet maximum height but still allow room for solar (albeit not necessarily at latitude inclination).

[13] Monroe County, PA.

[14] **Screening.** Some localities require that solar energy equipment be screened from public view. See Pottstown, PA ("Solar energy equipment must be substantially screened from public view (including adjacent properties and public rights of way) by fencing, plantings, or a combination thereof, as determined by the Zoning Officer.") and Monroe County, PA ("Mechanical equipment shall be screened from any adjacent property that is residential/commercially zoned or used for residential/commercial purposes. The screen shall consist of shrubbery, trees, or other non-invasive plant species which provides a visual screen. In lieu of a planting screen, a decorative fence meeting the requirements of the Zoning Ordinance may be used," and "Mechanical equipment shall not be located within the minimum front yard setback of the underlying zoning district.") A screening provision is not recommended in this model ordinance. Virginia's codified Energy Policy requires state and local governments to encourage renewable energy when making discretionary decisions (*see* Code of Virginia § 67-102).

iv. **[Signage** – provision not recommended**]**[15]

Solar Energy Projects shall comply with the signage regulations for the underlying zoning district in which they are located.

v. **[Glare** – provision not recommended**]**.[16]

b. Noise[17]

Noise requirements for Solar Energy Projects shall be no more stringent than noise requirements for other types of development in the underlying zoning district.[18]

c. Setbacks and Location[19]

Solar Energy Projects shall be set back to an extent no greater than that required of other types of construction in the underlying zoning district. If other types of construction in the underlying zoning district are required to be placed in the side or rear yard of a residence, then ground-mounted solar equipment may have similar, though no more restrictive, requirements.[20]

Consequently, if a locality does not require screening for other types of development, a provision requiring screening for solar systems might be viewed as discrimination against solar development, potentially in contravention of the Commonwealth's Energy Policy.

[15] **Signage.** If a signage provision is included, it is recommended that it be no stricter than the prevailing signage requirements for the zoning district. Some localities do prohibit certain types of signage on solar energy projects. The Monroe County, PA ordinance, for example, states that "[a] solar energy project shall not be used to display advertising, including signage, streamers, pennants, spinners, reflectors, ribbons, tinsel, balloons, flags, banners or similar materials. The manufacturers and equipment information, warning, or indication of ownership shall be allowed on any equipment of the solar energy project provided they comply with the prevailing sign regulations."

[16] **Glare.** Although most solar panels are now designed with at least one anti-reflective layer, some localities address the issue of glare and airport flight patterns. See Monroe County, PA ("Solar panels shall be placed such that concentrated solar radiation or glare shall not be directed onto nearby properties or roadways," and "Solar panels shall not be placed in the vicinity of any airport in a manner that would interfere with airport flight patterns. Acknowledgement from the Federal Aviation Administration may be necessary.") Because significant glare appears unlikely with the PV technology that can be utilized in Virginia, no glare provision is recommended.

[17] **Noise.** Virginia law requires that solar ordinances contain a noise provision (*see* §67-103 of the Code of Virginia). In reality, noise is not expected to be an issue for solar energy projects. Since the Virginia Code requires local governments to encourage renewable energy when enacting solar ordinances, it is recommended that the requisite noise provision be no more restrictive than what is already in place for other land uses.

[18] Township of Delaware, NJ.

[19] **Setbacks.** Virginia law requires that solar ordinances contain a setback provision (see §67-103 of the Code of Virginia). Many ordinances, such as this one, require that solar energy projects be set back to the extent of the required building setback. Alternatively, some ordinances use somewhat involved formulas to determine the appropriate distance of setback. Ashland, Oregon, for example, uses a formula that seeks to assure that no structure casts a shadow across the northern property line greater than that which would be cast by a 6 foot tall fence located at the northerly property line.

[20] Pottstown, PA. See also Monroe County, PA ("A ground mounted project or project attached to an accessory building shall not be located within the required front yard setback.") Again, this restriction pertaining to ground-mounted solar projects is only recommended if a similar restriction exists for other types of construction.

6 SAFETY AND CONSTRUCTION[21]

In the construction and installation of a Smaller Solar Energy Project, the project owner shall, to the greatest extent practicable, adhere to the following requirements:

d. The design and installation of Solar Energy Projects shall conform to applicable industry standards, including those of the American National Standards Institute (ANSI), Underwriters Laboratories (UL), the American Society for Testing and Materials (ASTM), or other similar certifying organizations, and shall comply with the Municipal Building Code and with all other applicable fire and life safety requirements. The manufacturer specifications shall be submitted as part of the application.[22]

e. The Solar Energy Project shall comply with all applicable **[locality]** Ordinances and Codes so as to ensure the structural integrity of such Solar Energy Project.[23]

7 DECOMMISSIONING[24]

If a Solar Energy Project has been determined to be unsafe by the **[locality]** Building Code Official, the Solar Energy Project shall be required to be repaired by the project owner or other responsible party to meet federal, state and local safety standards, or be removed by the project owner or other responsible party within the time period allowed by the **[locality]** Building Code Official. If the project owner or other responsible party fails to remove or repair the unsafe solar energy project, the **[locality]** may pursue a legal action to have the Project removed at the responsible party's expense.

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[21] **Design and operational safety:** There are a variety of ordinance provisions that relate to the technical aspects or installation requirements for a solar energy project, just as they do for most other types of projects. Although experienced builders and installers are generally well-acquainted with these requirements, it is recommended that they be included in the smaller-scale solar ordinance for the benefit of do-it-yourself installers.

[22] Alternative: "The design of the solar energy project shall conform to applicable industry standards. A building permit shall be obtained for a solar energy project per the [Virginia Uniform Statewide Building Code (USBC)] and the regulations adopted by the Department of Housing and Community Development. All wiring shall comply with the applicable version of the National Electric Code (NEC). The local utility provider shall be contacted to determine grid interconnection and net metering policies. The Applicant shall submit certificates of design compliance obtained by the equipment manufacturer from a certifying organization and any such design shall be certified by an Engineer registered in the Commonwealth of [Virginia]." Based on Monroe County, PA.

[23] Monroe County, PA.

[24] **Decommissioning.** Virginia law requires that solar ordinances contain a decommissioning provision (see §67-103 of the Code of Virginia). Although decommissioning of utility scale wind projects was once an issue in places like California, the LOG is not aware of decommissioning issues related to solar projects *per se*. In order to comply with the statutory requirement that a decommissioning provision be included, but to avoid contravening the Commonwealth's policy to encourage renewable energy, it is therefore recommended that localities consider language along the lines of the draft provision above – that is, to require repair or removal if the project presents a safety hazard, consistent with the requirements in place for other types of development.
Since the operation of PV panels is largely passive, it might not be dangerous, or even apparent, if a solar project is non-functioning.
Unless bonding or other surety measures are in place for other similar types of development, it is not recommended that such a clause be included in the solar ordinance's decommissioning provision.

When the project owner or other responsible party decommissions a Solar Energy Project, he shall handle and dispose of the equipment and other project components in conformance with state and local requirements.

Model Ordinance for Larger-Scale Solar Energy Projects in Virginia

December 21, 2012

BACKGROUND:

This Model Ordinance provides suggested language for consideration by localities in framing their own local solar ordinance for larger-scale solar energy projects. It was developed by the Local Government Outreach Group (LOG), an informal group of stakeholders with representation from local governments, developers, academia, and environmental organizations, whose work was facilitated by the Department of Environmental Quality (DEQ). Preliminary work on the model ordinance was performed by DEQ staff with assistance and advice from the Solar Technical Group. When utilizing this Model Ordinance, please also refer to the document, "Introduction: DEQ's Local Government Outreach for Renewable Energy," which can be found at http://www.deq.virginia.gov/Programs/RenewableEnergy/LocalGovernmentOutreach.aspx .

Primary sources for suggested provisions in this model include the Northampton (VA) ordinance, the Delaware Township (NJ) ordinance, and, to a lesser extent, the Pima (AZ) ordinance and the Oregon Model ordinance.

To the extent practicable, explanatory comments and issues of concern are noted in footnotes. The use of **[brackets]** around certain provisions (1) indicates points at which a local government should supply locality-specific information or (2) signals a decision point at which a local government may adopt the suggested provision and/or may wish to give special consideration to local circumstances and preferences in framing the provision.

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1. TITLE

This ordinance shall be known as the **[Larger-Scale]** Solar Energy Project Ordinance for **[locality]**.[1]

2. PURPOSE[2]

The purpose of this ordinance is to provide for the siting, development, and decommissioning of larger-scale solar energy projects in **[locality]**, subject to reasonable conditions that promote and protect the public health, safety and welfare of the community while promoting development of renewable energy resources.

3. DEFINITIONS

"Applicant" means the person or entity who submits an application to the locality for a permit to install a solar energy project under this ordinance.

"Disturbance Zone" means the area within the site directly impacted by construction and operation of the solar energy project.

"Integrated PV" means photovoltaics incorporated into building materials, such as shingles.

"Operator" means the person responsible for the overall operation and management of a solar energy project.

"Owner" means the person who owns all or a portion of a solar energy project.

"Photovoltaic" or "PV" means materials and devices that absorb sunlight and convert it directly into electricity.

"Rated capacity" means the maximum capacity of a solar energy project based on the sum total of each photovoltaic system's nameplate capacity.

"Site" means the area containing a solar energy project.

"Solar Energy Project, **[larger-scale]**," "Solar Energy Project," or "Project" means a renewable energy project that **either**

(a) generates electricity from sunlight, consisting of one or more PV systems and other appurtenant structures and facilities within the boundaries of the site,
or

[1] **Title.** This model ordinance uses the term "larger-scale" to refer to solar projects addressed by the ordinance. Local governments are urged to utilize terminology that best communicates the scope of their particular solar ordinances. (Note: This model ordinance generally attempts to be consistent with the substance, terminology, and format of the Commonwealth of Virginia's Small Renewable Energy Projects Act of 2009 and the LOG's Model Utility Scale Wind Energy Project Ordinance.)

[2] **Purpose.** The phrase "promoting development of renewable energy sources" conforms with Virginia's Energy Policy (specifically, §67-103 of the Code of Virginia). The legal requirements of this Energy Policy are discussed in the companion document, "Introduction: DEQ's Local Government Outreach for Renewable Energy," which appears on DEQ's website along with this model ordinance.

(b) utilizes sunlight as an energy source to heat or cool buildings, heat or cool water, or produce mechanical power by means of any combination of collecting, transferring, or converting solar-generated energy,
and
does not meet any of the following criteria: has a disturbance zone equal to or less than **[two acres]**, is mounted on or over a building or parking lot or other previously-disturbed[3] area, or utilizes integrated PV only.[4]

[3] **Previously Disturbed.** Members of the Solar Technical Group suggested that local officials may wish to define what they mean by "previously-disturbed area." This term may have different connotations in different settings. If a local government does not wish for agricultural land to be deemed "previously disturbed" because trees were removed, then it may want to define "previously disturbed" along the following lines: "Has undergone mechanical land-forming, construction, or demolition activities within the past 50 years."

[4] Localities may want to consider framing the Larger-Scale Solar Ordinance to pick up where the Smaller-Scale Solar Ordinance left off. That is, if the locality's Smaller-Scale ordinance addresses solar projects with a disturbance zone of two acres and less, then the Larger-Scale Ordinance could address projects larger than those. The suggested definition of "larger-scale project" is designed to communicate that projects meeting any of the criteria of "smaller-scale projects" should be addressed under the ordinance for "smaller-scale projects" and not under this ordinance.

4. PERMITTING[5]

A. Special use permit approval for larger-scale solar projects in residential and commercial zones.

1. Larger-scale solar energy projects may be installed if approved by a special use permit in residential and commercial zones.

2. The general procedures for applying for a special use permit as set forth in **[locality's]** zoning ordinance shall apply in addition to the applicable provisions of this ordinance.

B. Permit by Right approval for larger-scale solar projects in agricultural and industrial zones. Larger-scale solar energy projects may be installed if permitted by right in agricultural and industrial zones.

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[5] **Permitting – General Background.** Localities have several options for allowing the use of solar energy projects, with and without zoning designations. In general, these options may be described as follows:

1) **By right permitted use – This model ordinance recommends by right permitting for larger-scale projects that are located in agricultural and industrial zones.** Land uses that are permitted "by right" are those that can be approved administratively by the staff because the zoning ordinance allows it. By right development is regulated by the zoning ordinance and by the subdivision ordinance. Approval is a ministerial act typically carried out by the Zoning Administrator who implements the law or policy by applying the facts in a particular case. When the requirements of the law or policy are satisfied, approval is required. The zoning administrator has no discretion to deny an application.

   The Massachusetts Large-Scale Ground-Mounted Solar Photovoltaic Model encourages localities to adopt by right zoning policies. "[D]evelopment may proceed without the need for a special permit, variance, amendment, waiver, or other discretionary approval. As-of-right development may be subject to site plan review to determine conformance with local zoning ordinances or bylaws. Projects cannot be prohibited, but can be reasonably regulated by the inspector of buildings, building commissioner or local inspector, or if there is none in a town, the board of selectmen, or person or board designated by local ordinance or bylaw."

2) **Floating districts –** Northampton County addressed the need for development of solar energy projects by creating a floating solar energy district. The floating district, in effect, broadly identifies the need for solar energy and allows for the creation of a zoning district in a currently undetermined location if a developer submits a project design and concept development plan (subject to the requirements contained in the ordinance).

3) **Special Exception/Conditional Use/Special Use Permitting – This model ordinance recommends the special use permitting requirement for larger-scale solar energy projects in residential and commercial zones.** The three terms are synonymous and refer to land uses that are allowed in certain zoning districts with special permission or conditions. Uses allowed by special use permit are those considered to be generally consistent with the by right uses, but ones that may have a potentially greater impact on neighboring properties or the public. Approvals are conditioned upon the applicant's complying with specific requirements intended to address or mitigate anticipated impacts. These cases generally require case-by-case review by the planning commission, with recommendation for final action by the governing body. The governing body may revoke a special use permit for willful noncompliance with the zoning ordinance or the adopted conditions of the permit, or for failure to commence the use, structure, or activity within the prescribed period of time. Acting on a request for a special exception or a special use permit is a legislative act made only by the governing body, after public hearing.
   Many localities will already have language in place regarding special use permitting processes. Localities may, however, want to include additional provisions for a special use permit for larger-scale solar energy projects specifically. It is generally recommended that procedural timelines be consistent with those already in place for facilities of similar size and scope.

Table I: Permitted Uses[6]				
	Zoning District			
Project Type	**[Agricultural]**	**[Residential]**	**[Commercial]**	**[Industrial]**
Level 1 [7] **[>2 acres to 4 acres]**	[P]	[S]	[S]	[P]
Level 2 [>4 acres to 20 acres]	[P]	[S]	[S]	[P]
Level 3 [>20 acres]	[P]	[S]	[S]	[P]
P= Permitted by Right		S= Requires Special Use Permit		

5. APPLICATIONS AND PROCEDURES

In addition to the requirements of **[local site plan citation]** and **[local special use permit citation, if applicable]**, applications for a larger-scale solar energy project shall include the following information:

A. PROJECT DESCRIPTION

A narrative identifying the applicant, owner and operator, and describing the proposed solar energy project, including an overview of the project and its location; approximate rated capacity of the solar energy project; the approximate number, representative types and expected footprint of solar equipment to be constructed; and a description of ancillary facilities, if applicable.

B. SITE PLAN

The site plan shall conform to the preparation and submittal requirements of **[local site plan citation]**, including supplemental plans and submissions, and may include the following information:

1. Property lines and setback lines.
2. Existing and proposed buildings and structures, including preliminary location(s) of the proposed solar equipment.
3. Existing and proposed access roads, drives, turnout locations, and parking; however, this requirement shall not exceed VDOT requirements for other types of projects in the underlying zoning district.

[6] This table is a template to be adjusted by localities as they deem appropriate. It should be noted that localities may adjust the Table above in a variety of ways, including requiring different types of permitting within a given zone according to the size of the project. Localities should substitute their own zone designations if they do not use "residential, commercial, agricultural, industrial" (*e.g.* some localities have special zones for institutions).

[7] It is suggested that strata within the Table begin where the locality's Smaller-Scale Solar Ordinance leaves off. Although the suggested Table utilizes size of disturbance zone (in acres) as the criterion for defining project categories (that is, Level 1 = >2 acres to 4 acres; Level 2 = >4 acres to 20 acres; Level 3 = > 20 acres), a locality might instead choose to utilize the project's rated capacity (for example, Level 1 = >500 kW to 1 MW; Level 2 = > 1MW to 5 MW; Level 3 = > 5MW). Members of DEQ's Technical Solar Group in 2012 advised that, in Virginia, approximately 2 ½ MW of electricity can be generated by 10 acres of PV panels, with current technology.

4. Location of substations, electrical cabling from the solar systems to the substations, ancillary equipment, buildings, and structures (including those within any applicable setbacks).
5. Fencing or other methods of ensuring public safety.
6. Additional information may be required, as determined by the **[local official],** such as a scaled elevation view and other supporting drawings, photographs of the proposed site, photo or other realistic simulations or modeling of the proposed solar energy project from potentially sensitive locations as deemed necessary by the **[local official]** to assess the visual impact of the project, landscaping and screening plan, coverage map, and additional information that may be necessary for a technical review of the proposal.

C. DOCUMENTATION OF RIGHT TO USE PROPERTY FOR THE PROPOSED PROJECT

Documentation shall include proof of control over the land or possession of the right to use the land in the manner requested. The applicant may redact sensitive financial or confidential information.

D. ["Glint and Glare" Study – provision not recommended][8]

E. DECOMMISSIONING PLAN

The application shall include a decommissioning plan and other documents required by the Decommissioning section of this ordinance.

F. LIABILITY INSURANCE [9]

The applicant shall provide proof of adequate liability insurance for a larger-scale solar energy project prior to issuance of a zoning or building permit **[or prior to beginning construction].**

[8] At this writing, glint and glare studies were not found in adopted Virginia solar ordinances, and it is believed that solar technologies that can realistically be utilized in Virginia do not create glint or glare problems. If, however, a locality wishes to consider a glint and glare provision, the following is utilized by Delaware Township, NJ: "A 'Glint and Glare Study' shall be provided to demonstrate that the panels are located and installed so that the sum of the glare is directed away from an adjoining property or public rights of way." *See also* Argonne National Laboratory: 5 Impacts of Solar Energy Development and Potential Mitigation Measures ("Solar facilities should be sited and designed properly to eliminate glint and glare effects on roadway users, nearby residences, commercial areas, or other highly sensitive viewing locations, or to reduce them to the lowest achievable levels. Regardless of the solar technology proposed, a study to accurately assess and quantify potential glint and glare effects and to determine the potential health, safety, and visual impacts associated with glint and glare should be conducted. The assessment should be conducted by qualified individuals using appropriate and commonly accepted software and procedures.")

[9] **Liability Insurance.** Localities will need to decide what "adequate liability insurance" means in the context of local land use requirements. Typically, insurance requirements will be subject to the amount of investment, including installation costs, in the facility. Rather than providing a specific dollar amount, localities might want to develop a sliding scale based upon investment amount or some other indicator used by the locality in other contexts. It is suggested that localities require no greater amount of liability insurance for large solar projects than they do for other comparable types of development.

6. LOCATION, APPEARANCE, AND OPERATION OF A PROJECT SITE[10]

A. VISUAL IMPACTS[11]

The applicant shall demonstrate through project siting and proposed mitigation, if necessary, that the solar project minimizes impacts on the visual character of a scenic landscape, scenic vista, or scenic corridor as identified in the comprehensive plan.[12]

B. SIGNAGE

Warning signage shall be placed on solar equipment to the extent appropriate. Solar equipment shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the solar energy project. All signs, flags, streamers or similar items, both temporary and permanent, are prohibited on solar equipment except as follows: (a) manufacturer's or installer's identification; (b) appropriate warning signs and placards; (c) signs that may be required by a federal agency; and (d) signs that provide a 24-hour emergency contact phone number and warn of any danger. Educational signs providing information about the project and benefits of renewable energy may be allowed as provided in the local sign ordinance.

C. NOISE[13]

Noise requirements for Solar Energy Projects shall be no more stringent than noise requirements for other types of development in the underlying zoning district.

D. SETBACKS[14]

Solar equipment should be set back in compliance with the setback requirements for other types of development in the zoning district.

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[10] **General Siting Requirements.** There are a variety of zoning considerations related to nuisance, appearance, and public safety. This section contains provisions for various factors typically considered in a solar ordinance, with the exception of language concerning minimum lot size. There is no minimum recommended lot size. The ordinance provisions for setbacks that ensure a safe operating environment also define the minimum lot size.

[11] **Visual Impacts.** Very large solar energy projects have a visual presence in the landscape. Some communities may be concerned about the visual impact of these facilities. The language provided is designed to enable localities to explicitly address visual impacts without restricting access to solar resources. Note: Visual impacts of renewable energy projects on historic resources are addressed by the state's Renewable Energy Permit by Rule Regulations, and provisions on this issue are not recommended as part of the model ordinance.

[12] This provision assumes designation of scenic resources in a local comprehensive plan. If no such designation has occurred, then this provision is not applicable and not recommended. If the comprehensive plan is not a useful tool for identifying which scenic resources should be protected, then a locality is encouraged to utilize another approach that it deems more appropriate.

[13] **Noise. Although noise is not an issue commonly associated with solar projects** (except, perhaps, during the construction phase), Virginia law requires that solar ordinances contain a noise provision (*see* §67-103 of the Code of Virginia). Since the Virginia Code also requires local governments to encourage renewable energy when enacting solar ordinances, it is recommended that any established noise limit(s) for solar energy projects not be more restrictive than what is already in place for other land uses.

[14] **Setbacks.** Virginia law requires that solar ordinances contain a setbacks provision (*see* §67-103 of the Code of Virginia).

E. [FENCING – NO PROVISION RECOMMENDED][15]

F. [VEGETATION – NO PROVISION RECOMMENDED][16]

7. DECOMMISSIONING[17]

A. DECOMMISSIONING PLAN

As part of the project application, the applicant shall submit a decommissioning plan, which may include the following: (1) the anticipated life of the project; (2) the estimated decommissioning cost in current dollars; (3) how said estimate was determined; and (4) the manner in which the project will be decommissioned.

B. UNSAFE OR ABANDONED PROJECTS

1. If a Solar Energy Project has been determined to be unsafe by the **[locality]** Building Code Official, the Solar Energy Project shall be required to be repaired by the owner or operator to meet federal, state and local safety standards, or be removed by the owner or operator within the time period allowed by the **[locality]** Building Code Official. If the own-

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[15] **Fencing.** No provision recommended. (*See*, instead, reference to fencing or other methods of ensuring public safety under Location, Appearance, and Operation of a Project Site.) The Pima (AZ) Ordinance, however, requires owners/operators to install fencing around ground-mounted systems ("The minimum required fencing for a ground-mounted system is a perimeter chain link fence meeting minimum setback requirements, however, the Hearing Administrator may recommend additional or alternative specific types of fencing, screening, and/or walls appropriate to the site and surrounding land use(s) not otherwise prohibited by this title."). According to experts on DEQ's Solar Regulatory Advisory Panel, only relatively benign types of solar projects (photovoltaic systems and concentrating photovoltaic systems) appear to be realistic possibilities in Virginia, so such fencing requirements are likely unnecessary. If, however, fencing is required for other types of projects in the underlying zoning district, then these requirements would likely apply to solar projects as well. Such provisions should meet the requirements of the National Electric Code.

[16] **Vegetative Buffer. No provision recommended.** The following requirements, however, are adapted from the Northampton (VA) ordinance. This is another example of the type of provision that local governments should only consider implementing if they have compelling reasons to do so, counterbalancing the requirements of Virginia's Energy Policy to encourage renewable energy.

> A vegetated buffer is required that consists of a landscaped strip at least **[50]** feet wide measured from each boundary line of the property around the entire perimeter of the property. This buffer should be made up of plant materials that are mature enough to effectively screen the view, to **[eight feet]** above ground level, of the solar panels from adjacent properties all year around. A landscape berm properly prepared to accept plants, up to **[four feet]** high, may be used to assist reaching the required screening height. The screening must be fully established within **[five years]** and effectively maintained for the life of the project. Non-invasive plant species must be used. Any fencing must be installed on the interior of the buffer. A recommendation that the screening and / or buffer creation requirements be waived may be made by the **[locality planning commission]** when the applicant proposes to use existing wetlands or woodlands, as long as the wetlands or woodlands are permanently protected for use as a buffer.
>
> Existing vegetation may be removed only as authorized during the site plan review process to permit vehicular and utility access during construction of the facility and installation of power transmission lines.

[17] **Decommissioning.** Under Virginia law, a solar ordinance must contain a decommissioning provision (*see* §67-103 of the Code of Virginia). *See also,* the requirements of other localities.

er or operator fails to remove or repair the unsafe solar energy project, the **[locality]** may pursue a legal action to have the Project removed at the owner's or operator's expense. [-Dominion suggests deleting paragraph 1. As they commented re Smaller-Scale ordinance, safety requirements apply to all types of projects, and not just solar. As in Smaller-Scale, I'm leaving it for now, because it provides comfort level to govt & citizens. Dominion also suggested inclusion of second paragraph in Smaller-Scale Decommissioning provision. I've added that paragraph as #2 below.]

2. When the owner or other responsible party decommissions a Solar Energy Project, he shall handle and dispose of the equipment and other project components in conformance with state and local requirements.

3. At such time that a solar energy project is scheduled to be abandoned, the owner or operator shall notify the **[locality's chief administrative officer or his/her designee].**[18]

4. Within **[365 days]** of the date of abandonment, the owner or operator shall complete the physical removal of the solar energy project, if requested by the **[local governing body].** This period may be extended at the request of the owner or operator, upon approval of the **[local governing body].**

5. **[For Level 3 projects,]**[19] the **[local governing body]** may require reliable methods of secured funding sources to ensure that performance obligations under the local government approvals are satisfied, up to and including the costs for decommissioning.

[18] **Abandonment.** It is assumed that local governments will utilize or adapt their normal definition of "abandoned" for solar projects.

[19] **Surety.** It is recommended that sureties be required for Level 3 projects, which would have a disturbance zone >20 acres. Some members of the Solar Technical Group expressed concern that, if projects of even modest scale (*e.g.,* under 2 MW or less than 5 acres of disturbance zone) are required to meet surety (bonding) requirements, then we may inadvertently have blocked development of medium sized projects. According to one member of the group, if we have a 550 kW project or a project on 3 acres, providing bonding on the project most likely will make the project uneconomical in Virginia, as the investor returns for projects in Virginia already have difficulty meeting minimum thresholds, given low electricity rates in VA. In contrast to these comments, a VACO representative expressed concern that local governments may want surety for all projects in the larger-scale category, and not just for Level 3 projects. Hence, there are brackets around "Level 3."