

**Town of Belgrade  
Planning Board**

**May 12, 2022 / 6 p.m.**

**Belgrade Town Office  
990 Augusta Road  
Belgrade, ME 04917**

**This meeting will be conducted in person.**

**The public may also view the meeting and participate online at**

**<https://us02web.zoom.us/j/83033101494>**

**A G E N D A**

**Call to order**

**1. OLD BUSINESS**

- A.** Discussion and consideration of **Commercial Development Review Ordinance amendments** addressing commercial solar facilities.

**2. ADJOURN**

## TOWN OF BELGRADE

# ~~UTILITY SCALE~~ SOLAR ENERGY-PRODUCING FACILITY ORDINANCE

~~DRAFT 10-18-2021~~

### Section 1. Purpose

~~The purpose of this Ordinance is to~~ establish a municipal review procedure and siting standards for ~~Utility Scale~~ Non-Residential Solar ~~Energy-Producing~~ Facilities (~~USSEF's/NSEPFs~~ hereinafter referred to as "solar facility"). These standards are intended to:

- Establish clear guidelines and standards to regulate ~~utility scale~~non-residential solar ~~energy-producing~~ facilities;
- Permit the Town to fairly and responsibly protect public health, safety and welfare;
- ~~Support~~ Regulate the development of ~~utility scale~~non-residential solar energy ~~producing~~ facilities in a manner that minimizes any potential adverse effects on the scenic, cultural, and natural resource character of the Town;
- Provide for the removal of panels and associated ~~solar facility~~utility structures that are no longer being used for non-residential energy generation and transmission purpose; and
- Support the goals and policies of the Comprehensive Plan, including orderly development, efficient use of infrastructure, and protection of natural and scenic resources.

### Section 2. Authority

This Ordinance is enacted pursuant to the enabling provisions of Article VIII, Part 2, §1 of the Maine Constitution, the provisions of Title 30-A MRSA, §3001 (Home Rule), and the provisions of Title 30-A §4312 et. seq. (Comprehensive Planning and Site Plan Review Regulation, or "Growth Management" Act).

### Section 3. Applicability

~~No Utility Scale Solar Energy Facility shall be located within the Town of Belgrade without a Permit issued by the Town of Belgrade Planning Board, unless specifically exempted from the permit requirements of this Ordinance.~~ Any physical expansion, reconfiguration, or increase in the Rated Nameplate Capacity of an existing Non-Residential Solar Energy ~~Producing~~ Facility shall also require approval from the same permitting authority as required for a new ~~Utility Scale Solar Energy Facility~~NSEPF~~solar facility~~ under this Ordinance. ~~Routine maintenance or replacements do not require a permit.~~

**Commented [GS1]:** Article 7 - Section 5. NON-RESIDENTIAL SOLAR ENERGY PRODUCING FACILITIES

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**Commented [AW2]:** This could be added to the CDRO's Section 2, titled Purpose, as paragraph G on page 2

**Commented [GS3R2]:** Sorry did not pick up on these comments at last meeting. Suggest add "b" & "e" to existing Purpose section of pg. 2 of ordinance. Locate remainder of this paragraph in the new Section 5 of Article 7 since only apply to solar facilities.

**Commented [GS4]:** We discussed at meeting the awkwardness of repeating "non-residential solar energy producing facility". An alternative to using a non-sensical acronym is the convention of ... "(hereafter referred to as solar facility)"? Then use "solar facility" in rest of the new Section 5.

**Commented [AW5]:** Art. 1, Sec 2 on page 1 of the CDRO speaks to authority. It cites 3001, but not 4312. We could replace that entire section with this language.

**Commented [GS6R5]:** I agree with your suggestion.

**Commented [AW7]:** This is language from the KVCOG template that could be added as another bullet to Sec. 9.1 on page 16.

**Commented [GS8R7]:** Agree with suggestion.

a. ~~Exemption. Solar Energy Facilities occupying 800 square feet or less are exempt from the requirements of this Ordinance, but must meet state electrical codes and permitting requirements, and applicable requirements of any other Ordinance of the Town of Belgrade.~~

D. The establishment of a new non-residential use, including but not limited to gravel pits, mining operations, cemeteries, golf courses, non-residential solar energy-producing facilities, and telecommunication and wind power towers, even if no buildings or structures are proposed.

## **SECTION 2. USES NOT REQUIRING REVIEW**

G. The following solar energy producing facilities:

1. A facility only providing electricity to the owner's residential land use or off-setting the electrical utility bill of a residential land use by means of net metering, and when the facility is located on property owned by the owner of the residential land use.
2. Roof-mounted solar energy facilities on any legally permitted non-residential or residential principle or accessory structure;
3. Building-integrated solar power, including shingle, roof, hanging or canopy solar modules, windows, skylights, or walls, installed in a legally permitted non-residential or residential principle or accessory structure; and,
4. Repair or replacement of solar modules or other facility components that do not enlarge a non-residential facility's impervious surface area.

**Commented [AW9]:** This tracked change is George's suggested added language to Art. 3, Sec. 1 on page 3 of the CDRO.

**Commented [AW10]:** The Planning Board voted on March 17 to add this paragraph to Section 2 of the CDRO.

## **Section 4. Definitions**

As used in this Ordinance, unless the context otherwise indicates, the terms referenced below have the following meanings:

**Community-based renewable energy project:** a solar energy-producing facility which meets the definition in state statute (Title 35-A, subsection 3209-A) of a "community-based renewable energy project."

**Decommissioning:** means the full and complete physical removal of all components of a non-residential solar energy-producing facility, including but not limited to solar panels, associated anchoring systems and foundations, other structures, buildings, roads, fences, cables, electrical components, and associated facilities and foundations.

**Distributed generation renewable energy project:** a solar energy-producing facility which meets the definition in state statute (Title 35-A, subsection 3209-A) of a distributed generation renewable energy project.

**Farmland:** means any tract or tracts of land used for commercial farming:

A. That consists of 5 or more contiguous acres;

B. That has produced a gross annual farming income of at least \$2,000 per year from the sales value of farm products in one of the 2, or 3 of the 5, calendar years preceding the date of application for registration under Title 7, Part 1, Chapter 2-B.

C. That is land on which a farm product is produced.

"Farmland" does not include land used for woodlots, homes, farm buildings, roads, lawns or any area covered with noncrop vegetation that borders abutting land.

**Commented [AW11]:** These could be added to the alphabetical listing of definitions in Art. 8 beginning on page 45.

**Commented [GS12R11]:** Agree that all definitions should be in the same article of the ordinance.

**Commented [AW13]:** This definition comes from the state statute cited within the definition.

**Commented [GS14R13]:** Helpful.

**Financial capacity:** Means the demonstration of current and future financial capacity, which must be unaffected by the owner's or operator's future financial condition, to fully fund decommissioning in accordance with an approved decommissioning plan under this ordinance.

**Net metering:** means the same as net energy billing (NEB) as defined by the Maine Public Utilities Commission in Chapter 313, titled "Customer Net Energy Billing," of the Commission's regulations, and includes both kWh credit and tariff rate programs.

**Non-residential solar energy-producing facility:** any commercial, industrial, institutional or other non-residential solar energy facility producing electricity with ground-mounted solar modules regardless of total size or power output, including, but not limited to, any facility:

- 1) selling power to the regional electric grid;
- 2) that is classified by the Maine Public Utilities Commission as a community-based or a distributed generation renewable energy project;
- 3) producing energy for use by a commercial, industrial or institutional land use; or
- 4) generating and providing electrical power to the grid under a net-metering agreement with Central Maine Power Company in accordance with Chapter 313 of the Maine Public Utilities Commission regulations.

**Rated Nameplate Capacity:** means the maximum rated output of electric power production of the photovoltaic system in watts of ~~Direct~~ Alternating Current (AC)

**Residential Dwelling ~~Structure~~Unit:** A room or group of rooms designed and equipped for use as permanent, seasonal, or temporary living quarters for only one family at a time and containing cooking, sleeping, and toilet facilities. The term shall include mobile homes and rental units that contain cooking, sleeping and toilet facilities regardless of the time-period rented. Recreational vehicles are not residential dwelling units. ~~means any structure that includes a room or group of rooms with a bathroom, cooking, and sleeping facilities designed and equipped exclusively for use as permanent, seasonal, or temporary living quarters. The term shall include mobile homes and rental units that contain cooking, sleeping and toilet facilities regardless of the time-period rented. Recreational vehicles are not residential dwellings.~~

**Commented [AW15]:** This language comes directly from the SZO.

**Transfer of ownership:** means a change in the legal entity that owns or operates a solar energy development. A sale or exchange of stock or membership interests or a merger is not a transfer of ownership as long as the legal entity that owns or operates the solar energy development remains the same.

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**Utility Scale Solar Facility (USSF):** ~~is any solar facility, project, or installation which is intended to and/or in fact does generate solar power and feeds said power into the electric grid supplying the local utility with power. This shall include, but is not limited to, any ground-mounted photovoltaic (PV) project that is larger than 0.10 M.W. (ac) in capacity. Residential/commercial solar arrays smaller than 0.10 M.W. (ac) are not included in this definition.~~

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#### **Section 5. Administration and Enforcement**

~~This Ordinance. Regulations related to non-residential solar energy-producing facilities will be administered as an additional level of review along with the provisions of the Site Plan Commercial Development Review Ordinance, including Sections II Articles 1 through 8V, which are hereby incorporated by reference. Specific application requirements, standards of review, and other requirements pertinent to Solar Energy Facilities within this Ordinance shall be added to the Application Requirements and Standards of Approval within the Site Plan Review Ordinance.~~ In case of a conflict, the stricter provision shall apply.

- a. ~~Permit Required. An approval Permit from the Planning Board is required prior to the installation, construction, or expansion of a Utility Scale Solar Energy Facility (USSF). USSF's must meet the requirements of this Ordinance and the Site Review Ordinance. All USSF's must also meet all federal and state electrical codes and permitting requirements.~~

**Commented [AW16]:** I BELIEVE this paragraph should be added to Art. 4, Sec. 3.2 on page 6 of the CDRO.

**Commented [GS17R16]:** I actually think would stand out more if in new Section 5 of Article 7, especially given wording. That would ensure an applicant & the Board are reminded that this section supplements the rest of the ordinance and that the rest of the ordinance also needs to be met.

## Section 6. Specific Application Requirements

In addition to the requirements listed in ~~Art. 4 Sec. 5.4~~ ~~Section II~~ of the ~~Site Plan~~ Commercial Development Review Ordinance, an application for a ~~USSF non-residential solar energy-producing facility~~ permit must also include the following:

**Commented [AW18]:** The requirements enumerated here could be added to this portion of the CDRO.

a. An additional permit / technical review fee to be set by the Board of Select ~~persons~~ ~~men~~ shall be payable at the time of application. This fee will be reviewed and amended as necessary on an annual basis. ~~The Planning Board may at its discretion retain independent technical or legal expertise to assist in review or supplement the evidence presented by the applicant and received during the public hearing. The cost of such assistance shall be borne by the applicant according to the terms of an escrow account set-up at the time the application is submitted as listed in the Permit Fee Schedule established by the Board of Select persons.~~

**Commented [AW19]:** This language mirrors what appears in Sec. 5.5b on page 11 of the CDRO. The board may want to consider whether it wants/needs this language in twice, including in Sec. 5.4.

~~a.b.~~ A description of the owner of the facility, the operator if different, and detail of qualifications and track record to run the ~~USSF non-residential solar energy-producing facility~~;

**Commented [GS20R19]:** Either location is fine with me at the end of the day. I agree with your suggestion to add a reference to the list of application submissions in Sec. 5.4 B – e.g., and, if required by the Board, an escrow account payment for hiring by the Planning Board of independent technical or legal expertise to assist it in its application review.

~~b.~~ ~~If the operator will be leasing the land, a copy of the agreement (minus financial compensation) clearly outlining the relationship inclusive of the rights and responsibilities of the operator, landowner, and any other responsible party with regard to the USSF and the life of the agreement;~~

**Commented [AW21R19]:** After watching the April 7 video, I still wasn't clear which language the Board prefers.

c. A description of the energy to be produced and to whom it will be sold;

d. A copy of the agreement and schematic details of the connection arrangement with the transmission facility, clearly indicating which party is responsible for various requirements and how they will be operated and maintained;

e. A description of the panels to be installed, including make and model, and associated major facility components;

f. A construction ~~plan and~~ timeline, identifying known contractors, site control, and anticipated on-line date;

g. A full official land survey of the proposed site. Must include any Rights of way and Easements on the property and be sealed and/or stamped by a Maine licensed professional surveyor.

h. An operations and maintenance plan, including site control and the projected operating life of the facility;

i. An emergency management plan for all anticipated hazards;

j. Proof of financial capacity to construct and operate the proposed ~~non-residential solar energy-producing facility~~ ~~USSF~~; and

k. ~~Name and contact information for solar system installer, and if different, the name, contact information and license number of the supervising Maine licensed electrician;~~

- l. Written certification by the installer that all electrical components shall be installed in accordance with the National Electrical Code;
- m. Provide a one- or three-line electrical diagram detailing the electrical components installation and electrical inter-connections to the Belgrade fire chief;
- n. Stream crossing detailed design plans;
- o. Prime agricultural soils identification and mapping conducted by a Maine-licensed soil scientist in accordance with the Maine Department of Agriculture, Conservation & Forestry guidelines, Determining Prime Farmland Soils and Soils of Statewide Importance for Siting Solar Projects in Maine, May 2020, or as revised; and,
- p. Maine Inland Fisheries & Wildlife Beginning with Habitat program mapping of high-value plant and animal species habitat on the project parcel and abutting parcels. High and moderate deer yard mapping within 1,500 feet of the development.

j-g.

#### k-r. A Visual Impact Assessment

An analysis to determine potential visual effect of the solar facility USSF must be undertaken. In all visual impact assessments, scenic resources within the viewshed of the proposed activity must be identified and the existing surrounding landscape must be described. The assessment must be completed following standard professional practices, including Sections 4-7, Section 10 and Appendix A of Chapter 315 of the Maine Department of Environmental Protection regulations, Assessing and Mitigating Impacts to Existing Scenic and Aesthetic Uses (except "Planning Board" replaces "Department"), to illustrate the proposed change to the visual environment and the effectiveness of any proposed mitigation measures.

A visual impact assessment must also include narratives to describe the significance of any potential impacts, the level of use and viewer expectations, measures taken to avoid and minimize visual impacts, and steps that have been incorporated into the activity design that may mitigate any potential adverse visual impacts to scenic resources.

The Visual Impact Assessment must include the following elements:

#### i. A visual and cartographic analysis (Viewshed Analysis)

A geographical representation of all the areas within a minimum of 3 miles of where the USSF solar facility, from its highest points is visible from the surrounding (impact) area should shall be presented. The radius of the impact area to be analyzed must be based on the relative size and scope of the proposed activity given the specific location. Areas of the impact area from which the activity facility will be visible, including representative and worst-case viewpoints, must be identified. At a minimum, these public recreation and scenic resources within the boundaries of the Town of Belgrade are to be considered viewpoints for inclusion in this analysis: Great Pond, Long Pond, Messalonskee Lake, Salmon Lake, McGrath Pond, Minot Hill Road, areas of the Belgrade Lakes Golf Club open to the general public and above 400 feet elevation, and areas of Belgrade accessible by public road with an

**Commented [GS22]:** Should we include this or similar language as guidance to future PBs & applicants regarding the legal limit of the ordinance's jurisdiction? Future Boards will not be aware of the legal opinion we received during the ordinance development. Sorry did not mention before.

**Commented [AW23R22]:** George, very good idea.

**Commented [GS24]:** My recollection of the discussion at the 4/21/22 meeting was not that the entire private golf club would be considered a "public recreation and scenic resource", but only the knoll from which the public is allowed access to see the view of Great Pond. We discussed finding the name of the knoll and using that in the ordinance. Did I misunderstand? I've looked at multiple topo maps and that knoll does not seem to have a widely accepted name. An alternative is to use language like "areas of the Belgrade Golf Club open to the general public and above 400 feet elevation". This captures the views from the access road, the parking lots, and the club house/restaurant.

**Commented [AW25R24]:** Sounds good to me. I've gone ahead and added that. The Board can edit later if need be.

elevation above sea level equal or greater than 550 feet. Line-of-sight profiles constitute the simplest acceptable method of illustrating the potential visual impact of the proposed activity from viewpoints within the context of its viewshed. A line-of-sight profile represents the path, real or imagined, that the eye follows from a specific point to another point when viewing the landscape.

ii. Site inventory and photographic review.

This should provide a comprehensive and objective means by which to analyze and assess the potential visual and aesthetic impacts that may result from the USSF and its associated elements.

iii. Visual Simulations - Visual simulations should be provided to show a photo-realistic perspective view of proposed USSF elements in the landscape, thereby allowing abutters to clearly visualize how a project will really look from their primary residential structure.

The visual impact assessment must be prepared by a design professional trained in visual assessment procedures, or as otherwise directed by the Planning Board.

iv. The visual impact assessment must be prepared by a Maine-licensed landscape architect or other design professional trained in visual assessment procedures, or as otherwise directed by the Planning Board.

s. An application for a Non-Residential Solar Energy-Producing Facility permit must include a decommissioning plan. "Decommissioning" means the full and complete physical removal of all components of a solar energy facility, including but not limited to solar panels, associated anchoring systems and foundations, other structures, buildings, roads, fences, cables, electrical components, and associated facilities and foundations. Decommissioning plans must include:

1.t. A decommissioning plan, including:

- i. A description of the trigger for implementing the decommissioning plan. There is a rebuttable presumption that decommissioning is required if no electricity is sold commercially to external customers~~generated~~ for a continuous period of 12 months. The Applicant may rebut the presumption by providing evidence, such as a force majeure event that interrupts the generation and commercial sale of of electricity, that although the project has not commercially sold generated electricity for a continuous period of 12 months, the project has not been abandoned and should not be decommissioned.
- ii. A description of the work required to physically remove all solar panels, associated foundations, buildings, cabling, electrical components, and any and all other associated facilities to the extent they are not otherwise in or proposed to be placed into productive use. All earth disturbed during decommissioning must be graded and re-seeded, unless the landowner of the affected land requests otherwise in writing.

[Note: At the time of decommissioning, the Applicant ~~may~~ must provide evidence of plans for continued beneficial use of any or all of the components of the Solar Energy Facility. No waste from a decommissioning may be disposed of at the Town of Belgrade Transfer Station. Any changes to the approved decommissioning plan shall be subject to review and approval by the Planning Board.]



- iii. An estimate of the total cost of decommissioning ~~less salvage value of the equipment~~ and itemization of the estimated major expenses, including the projected costs of measures taken to minimize or prevent adverse effects on the environment during implementation of the decommissioning plan. The itemization of major costs may include, but is not limited to, the cost of the following activities: panel removal, panel foundation removal and permanent stabilization, building removal and permanent stabilization, transmission corridor removal and permanent stabilization, and road infrastructure removal and permanent stabilization. This cost estimate must be updated every three (3) years and submitted to the Planning Board for its approval.
- iv. Demonstration in the form of ~~a performance bond, surety bond, an irrevocable~~ letter of credit, ~~a certified check payable to the municipality or a savings account or certificate of deposit naming the municipality as owner, for the establishment of an escrow account;~~ or other form of financial assurance as may be acceptable to the Planning Board that upon the end of the useful life of the ~~USSE solar facility~~ the Applicant will have the necessary financial assurance in place for ~~12500%~~ of the total cost of decommissioning, ~~less salvage value.~~ T. The owner of the facility shall provide the Planning Board with a revised removal cost estimate and structural evaluation prepared by a professional civil engineer licensed in Maine or a professional array construction company every three (3) years from the date of the Planning Board's approval of the solar array complex plan. ~~he Applicant may propose securing the necessary financial assurance in phases, as long as the total required financial assurance is in place a minimum of 5 years prior to the expected end of the useful life of the USSE.~~ The financial assurance shall include a provision granting the Town the ability to access the funds and property and perform the decommissioning if the ~~USSE development~~ is abandoned or the Applicant or subsequent responsible party fails to meet their obligations after reasonable notice, to be defined in the agreement and approved by the Planning Board.
- v. Transfer of ownership. Upon a transfer of ownership of a commercial solar energy development subject to a decommissioning plan approved under this ordinance, a person that transfers ownership of the development remains jointly and severally liable for implementation of the plan until the Planning Board approves transfer of the decommissioning plan to the new owner or operator. New owners must demonstrate to the Planning Board's satisfaction an ability to meet the financial assurance requirement. -

## Section 7. Standards for Approval

In addition to the requirements in Section III of the Site Plan Review Ordinance, the following standards must also be met:

- A. Siting prohibitions - The development or construction of a non-residential solar energy producing facility shall be prohibited in the following locations:
  - 1. The Shoreland Zone as mapped in the Belgrade Shoreland Zoning Ordinance map;
  - 2. The Village and Critical Resource Conservation Districts as described and mapped by the Town of Belgrade 2014 Comprehensive Plan;
  - 3. Areas of 20% or greater slope; and,
  - 4. Areas with elevations above sea level of 550 feet or greater.
- B. Other prohibitions:
  - 1. The development or construction of solar concentrating power plants are prohibited; and
  - 2. Transformers and other electrical equipment using halogen or PCB oils as coolants are prohibited.

~~C.~~ The solar energy system shall be designed by a Maine-registered electrical engineer.

Commented [AW26]: Added May 5.

~~A-D.~~ ~~I.~~ Legal Responsibilities: The Applicant must provide proof of authorization to construct, use, and maintain the property and any access drive for the life of the USSF solar facility and including the decommissioning of the USSF solar facility. The roles and responsibilities of the facility owner, operator, landowner and any other party involved in the project must be clear and meet the satisfaction of the Planning Board that the public interest is protected.

~~B-E.~~ Setbacks: Structures (including fencing) that are part of a USSF shall be setback a minimum of 100 feet from any existing residential dwelling structure.

Commented [AW27]: Will return to this on May 12.

~~E.~~ Height: The USSF shall be no more than 15 feet high at its tallest point of any equipment. Maximum solar module height, as measured from ground level to a module's highest point at full tilt, shall not exceed 12 feet.

Commented [AW28]: Seel recommends 250' from road ROWs and existing dwelling units, and 150' for transformers from neighboring property lines. Questions whether fencing is a structure. Mr. Alexander advocated 250' from property lines.

Commented [AW29]: Stopped here May 5.

~~C-G.~~ Utility Notification: No USSF shall be installed until evidence has been given to the Planning Board that the applicant has an agreement with the local utility to accept the power.

~~D-H.~~ Fencing: The Planning Board may require that a USSF be enclosed by fencing to prevent unauthorized access and may also require landscaping to avoid adverse aesthetic impacts of installed fencing to adjacent properties.

~~E-L.~~ Signage: Signage shall be required to identify the owner of the USSF and provide a 24-hour emergency contact phone number. This signage shall not be used for advertising except for reasonable identification of the manufacturer or operator of the USSF. A clearly visible warning sign shall be placed at the base of all pad-mounted transformers and substations and on the fence surrounding the USSF, informing individuals of potential voltage hazards, including stating the output of power (AC or DC).

Signage indicating the official e911 address of the Facility shall also be required to clearly be visible, from both directions of travel, from the public road or roads from which the USSF is accessed.

~~F-J.~~ Visual Impact: Any USSF should not have any detrimental effect on the scenic resources of the town or degrade the scenic value from abutters properties. In order determine the visual impact of any USSF, the Planning Board will, using the information provided in the Visual Impact Assessment study (See above), consider the following:

- i. The significance of the potentially affected scenic resources;
- ii. The existing character of the surrounding area;
- iii. The expectations of the typical viewer;
- iv. The project purpose and the context of the proposed activity;
- v. The extent, nature and duration of the potential effect of the USSF's presence on the public's continued use and enjoyment of the towns scenic resources.

~~G-K.~~ Emergency Services: The USSF owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the Town of Belgrade Fire Chief. Upon request, the owner or operator shall coordinate with local emergency services in developing an emergency response plan. A "3200 Series KNOX-BOX" shall be provided and installed by the operator to be used to allow emergency service personnel continuous access. All means of shutting down the USSF shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.

Access roads to the USSF shall be of sufficient quality and dimensions to satisfy the fire chief that any emergency response vehicles be able to easily and safely gain access to and around the site.

H.L. Maintenance Conditions: The USSF owner or operator shall maintain the USSF and all associated fencing and landscaping elements in good functional condition. Maintenance shall include, but not be limited to, painting, structural repairs, and integrity of security and visual barrier measures. The USSF must be properly maintained and be kept free from all hazards, including, but not limited to, faulty wiring, loose fastenings, being in an unsafe condition or detrimental to public health, safety, or general welfare. Site access shall be maintained to a level acceptable to the Town of Belgrade Fire Chief for emergency response. The owner or operator shall be responsible for the cost of maintaining the USSF and any access road(s).

I.M. Modifications: Any material modifications to a USSF made after issuance of the required Town permit(s) shall require approval by the Code Enforcement Officer and/or the Planning Board.

J.N. Satisfaction with All Aspects of Capacity and Plans Submitted: The Planning Board must find that the Applicant has the capacity to finance, safely operate and decommission the USSF.

## MEMORANDUM

To: Members of Belgrade Planning Board

CC: Anthony Wilson, Town Mgr.; Richard Greenwald, CEO , Steve Buchsbaum

Date: 3/21/22

RE: Application requirements and permitting standards to supplement those in KVCOG model ordinance for non-residential solar energy producing facilities

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As I mentioned at our March 17<sup>th</sup> meeting, I am of the opinion that the application requirements and permitting standards in the KVCOG model ordinance could use some “beefing up” to adequately address potential issues and negative impacts of larger non-residential solar energy facilities. They should also provide more detail to clarify for applicants what the Town’s expectations are to obtain a permit under the Commercial Development Review Ordinance. The following are my suggestions based on review of various other model ordinances, State agency guidelines, and a particularly informative evaluation and report by the Massachusetts Departments of Energy Resources and Environmental Protection & the Clean Energy Center done in 2015 of solar facilities in that state. Explanations of my thinking and questions for the Board to consider are in *italics*. As agreed at the meeting, I am providing in writing so they can be reviewed by the Board in advance of our next meeting and can be serve as a discussion outline together with the KVCOG model ordinance.

### **Specific Application Requirements:**

- 1) Sec. 6 from KVCOG model ordinance (pp.3-5), including “Viewshed Analysis”, “Visual Simulations” and amended decommissioning plan/financial assurance mechanism. I suggest the following amendment to “I. Visual Impact Assessment”.

The Visual Impact Assessment must include the following elements:

- i. A visual and cartographic analysis (Viewshed Analysis)

A geographic representation of all areas of where the ~~USSE~~ solar facility, from its highest points is visible from the surrounding (impact) area should be presented. The radius of the impact area to be analyzed must be based on the relative size and scope of the proposed ~~activity~~ facility, given the specific location. Areas of impact area from which the ~~activity~~ facility will be visible , including representative and worst-case viewpoints, must be identified. At a minimum these public recreation sites and scenic resources are to be considered viewpoints for inclusion in this analysis: Great Pond, Long Pond, Messalonskee Lake, Salmon Lake, McGrath Pond, Mount Philips (Rome), French Mountain (Rome), Blueberry Hill (Rome), Kennebec Highlands Maine Public Land Reserve (Rome/Vienna), The Mountain (Rome) and areas of Belgrade accessible by public road with an elevation above sea level equal or greater than 600 feet. (Looking over 7 1/2 and 15 minute USGS topo maps, this would include Belgrade’s highpoint, Lord Hill on the Guptill Rd., and the view of the western Maine hills and Mount Washington from the Sutton property on the West Rd. and protected

by conservation easement.)<sup>1</sup> Continue with KVCOG's language for remainder of paragraph.

iii. Visual Simulations. Visual simulations ~~should~~ are to be provided to show a photo-realistic perspective view of proposed ~~USSE~~ solar facility elements in the landscape, ~~thereby and also~~ allowing abutters to clearly visualize how a project will really look from their ~~primary residential structure~~ dwelling unit.

iv. The visual impact assessment must be prepared by a design professional trained in visual assessment procedures, or as otherwise directed by the Planning Board.

- 2) Additional submissions - In addition to the above I suggest we require the following application submissions to supplement or replace KVCOG's application requirements, as appropriate:
  - a) Name and contact information for solar system installer, and if different, the name, contact information and license number of the supervising Maine licensed electrician;
  - a) Written certification by the installer that all electrical components shall be installed in accordance with the National Electrical Code;
  - b) Provide a one- or three-line electrical diagram detailing the electrical components installation and electrical inter-connections to the Belgrade fire chief;
  - c) Stream crossing detailed design plans;
  - d) Prime agricultural soils identification and mapping conducted by a Maine licensed soil scientist in accordance with the Maine Department of Agriculture, Conservation & Forestry guidelines, Determining Prime Farmland Soils and Soils of Statewide Importance for Siting Solar Projects in Maine, May 2020; and,
  - e) Maine Inland Fisheries & Wildlife Beginning with Habitat program mapping of high value plant and animal species habitat on the project parcel and abutting parcels. High and moderate deer yard mapping within 1,500' of the development.

#### **Development Standards for Approval**

In addition to the performance/permitting standards in Sec. 7 from KVCOG model ordinance (pp. 5-6), I suggest the following to supplement, replace or amend those proposed by KVCOG:

- 1) Siting prohibitions - The development or construction of a non-residential solar energy producing facility shall be prohibited in the following locations:
  - a) The Shoreland Zone as mapped in the Belgrade Shoreland Zoning Ordinance map;
  - b) The Village and Critical Resource Conservation Districts as described and mapped by the Town of Belgrade 2014 Comprehensive Plan; and,
  - c) Areas of 20% or greater slope.
- 2) Other prohibitions:
  - a) The development or construction of solar concentrating power plants are prohibited; and

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<sup>1</sup> If the Town attorney's advice is that Belgrade only has the legal authority to address the visual impact on areas within the boundaries of Town, this list will need to be amended accordingly.

- b) Transformers and other electrical equipment using halogen or PCB oils as coolants are prohibited<sup>2</sup>.
- 3) The solar energy system<sup>3</sup> shall be designed by a Maine registered electrical engineer
- 4) Minimum Setbacks:
  - a) Solar modules may not be located less than 250' from existing public and private road rights-of-way;
  - b) Solar modules may not be located less than 250' from existing residential dwelling units; and,
  - c) Transformers and inverters may not be located less than 150' from a property line<sup>4</sup>.
- 5) Maximum solar module height, as measured from ground level to a modules' highest point at full tilt, shall not exceed 12' in the Mixed Residential Commercial Use District or 22' in the Rural or General Development Districts, as defined and mapped by the 2014 Town of Belgrade Comprehensive Plan.
- 6) Visual screening requirements. The solar facility shall be visually obscured from property lines, public and private roads, and residential dwelling units by a vegetative screen or buffer. The screening shall be designed and maintained as follows:
  - a) All vegetative screening shall maximize the retention and use of existing, naturally occurring woodland and shrubs, with clearing limited to hazard trees. Clearing of trees and other natural vegetation prior to receiving development approval from the Planning Board is prohibited. The Planning Board may require augmentation of naturally occurring vegetation with plantings of native trees and shrubs to achieve significant visual screening if sufficient density of growth does not already exist. If damaged by weather, fire or disease at any time over the operating life of the facility, the visual buffer shall be maintained with the planting of trees and shrubs.
  - b) Minimum vegetative screening dimensions:
    - i) 50' in depth along abutting property lines except as provided below. *This serves as a baseline requirement for lands not currently developed with residences, private roads, woodlots, fields or other similar undeveloped parcels or parts of parcels, as well as existing commercial/industrial land uses. A similar vegetative screen or buffer is not currently provided in the ordinance between proposed non-residential development and these land uses.*
    - ii) 200' in depth along public roads (*Note: >5X that of other commercial developments*)
    - iii) 250' in depth along the common property line(s) with an existing residential dwelling unit that extends along the length of the property line demarcated by a 180-degree arc with a

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<sup>2</sup> Source – State of Massachusetts's Depts.' Of Energy Resources, Environmental Protection & Clean Energy Center; Clean Energy Results: Q&A Ground Mounted Solar Photovoltaic Systems, June 2015. Object to prevent toxic release in the event of a fire. Most transformers now use mineral oil as coolant but not all.

<sup>3</sup> See proposed definition

<sup>4</sup> Source – State of Massachusetts's Depts.' Of Energy Resources, Environmental Protection & Clean Energy Center; Clean Energy Results: Q&A Ground Mounted Solar Photovoltaic Systems, June 2015. Purpose to mitigate electromagnetic field and noise to background levels at property line.

radius of 250' from each corner of the residential dwelling unit. Screening will be provided along the greatest length of property line indicated by this measurement method.

- iv) Vegetative screening of abutting property lines and residential dwelling units above may be reduced by the Planning Board to no less than 50' upon receipt of written permission of the abutting land owners and the owner of a residential dwelling owner. This provision does not apply to the visual screening of public roads.
  - c) On sites which lack existing woodland, a planted vegetative buffer shall be planted to the same dimensions as stated above in this subsection, sufficient to provide with time year-round screening. The buffer shall consist of a mixture of native conifer tree species (e.g., white pine, balsam fir, white or red spruce, etc.) and understory trees and shrubs. Trees shall be a minimum of 6 feet in height at the time of planting and spaced no more than 30 feet apart, with shrubs and understory trees filling all gaps between the future overstory trees. Trees shall be planted in alternating rows to achieve an effective visual screen. All shrubby plant material shall be at least 3 feet in height at the time of planting and the species selected will grow at least to 5 feet at maturity. A planted vegetative visual screen shall be maintained over the lifespan of the facility with all plantings that die replaced as soon as growing conditions allow.
  - d) Where no vegetation can be grown due to unique site conditions, the Planning Board may approve a visual screen consisting of fences, walls, berms or a combination thereof, provided that such structures are not placed closer than 15 feet to a property line or public or private road right-of-way. Artificial screening shall be of sufficient height and length to effectively screen the facility from view.
  - e) The visual screen shall be planted or installed prior to completion of the development and prior to the start of facility operation.
- 7) Vehicle access and electrical transmission routes shall be combined into a single corridor through required vegetative screening and buffers, or shall be co-located in existing rights-of-way, roads or other existing man-made linear features.<sup>5</sup>
- 8) Amendment to KVCOG paragraph "g) Visual Impact" standard.  
~~Any USSF solar facility should~~ is not to have any detrimental effect on the scenic resources of ~~the town of~~ Belgrade or substantially degrade the scenic ~~value~~ view from abutters' properties. In order to determine the visual impact of any ~~USSE solar facility~~, the Planning Board will, using the information provided in the Visual Impact Assessment study (See above), consider the following:
- i. The significance of the potentially affected scenic resources;
  - ii. The existing character of the surrounding area;
  - iii. The expectations of the typical viewer;
  - iv. The project purpose and context of the proposed activity;
  - v. The extent, nature and duration of the potential effect of the ~~USSF's~~ solar facility's presence on the public's continued use and enjoyment of ~~the town's Belgrade's~~ scenic resources.

The Planning Board shall consider the scenic resources of Belgrade to include, but not be limited to, the following public recreation sites and resources and scenic viewpoints: Great Pond, Long Pond,

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<sup>5</sup> Maine Audubon model solar facility site review ordinance

Messalonskee Lake, Salmon Lake, McGrath Pond, Mount Philips (Rome), French Mountain (Rome), Blueberry Hill (Rome), Kennebec Highlands Maine Public Land Reserve (Rome/Vienna), The Mountain (Rome) and areas in Belgrade accessible by public road with an elevation above sea level equal to or greater than 600 feet.

The Planning Board shall implement the visual impact standard with a rebuttable assumption when leaves remain on the deciduous trees that any solar facility visible from Great Pond, Long Pond, Messalonskee Lake, Salmon Lake, McGrath Pond, Mount Philips, French Mountain, Blueberry Hill, the Kennebec Highlands Maine Public Land Reserve, The Mountain or an area in Belgrade accessible by public road with an elevation above sea level equal to or greater than 600 feet will have a detrimental effect on the scenic resources of Belgrade and therefore will have an adverse effect on the scenic and natural beauty of the area under paragraph xvi of Article 5: Review Criteria of the ordinance.<sup>6</sup>

- 9) Maintain 100' buffer<sup>7</sup> of natural vegetation along any rivers, streams or brooks<sup>8</sup>, except for perpendicular crossings required for vehicle/powerline access. For streams less than 6' wide with less than a 2% slope, stream crossings shall be designed and constructed in accordance with the Maine Department of Transportation's Stream Smart Road Crossing Pocket Guide. Larger stream crossings shall be designed by a Maine registered professional engineer based on the principles of the Maine Stream Smart program.
- 10) 250' setback and natural vegetation buffer from habitat of high value plant and animal species as identified and mapped by the Maine Department of Inland Fisheries and Wildlife's Beginning with Habitat program, including but not limited to habitat for state or federally listed endangered species, significant vernal pools, and high or moderate value waterfowl and wading bird habitats.
- 11) 1,320' setback and natural vegetation buffer from areas identified and mapped by the Maine Department of Inland Fisheries and Wildlife as a high or moderate value deer wintering area.
- 12) 75' setback and naturally vegetated buffer from wetlands included in the U.S. Fish and Wildlife Service's National Wetland Inventory, except for wooded wetlands. May not be located in wooded wetland, but no setback or buffer required.
- 13) Protect prime farmland and farmland of statewide important agricultural soils/lands – No more than 10% of the total project area may be located on land with soils defined by the U.S. Dept. of Agriculture's Natural Resources Conservation Services as "prime farmland" or "farmland of statewide importance" as determined by a field survey conducted by a Maine licensed soil scientist and in accordance with the Maine Dept. of Agriculture, Conservation and Forestry's May 2020

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<sup>6</sup> This is one of the review criteria we need to find is met when completing the Findings of Fact and Law for any project. See pg. 18 of the ordinance.

<sup>7</sup> In accordance with Maine Dept. of IF&W guidelines & Maine Audubon, Renewable Energy & Wildlife in Maine: Avoiding, Minimizing and Mitigating Impacts from Solar, Wind and Transmission Facilities, Nov. 2019. Purpose to protect wildlife travel corridors and stream water temperature and oxygen levels.

<sup>8</sup> Define same as in State statute, 38 MRSA, subsection 480-B(9).



guidance document entitled *Determining Prime Farmland Soils and Soils of Statewide Importance for Siting Solar Projects in Maine*;

- 14) Provide safety fencing around all electrical equipment. Fencing shall be “Solid Lock Game Fence”<sup>9</sup> or of similar design with 8”x12” holes at bottom, or shall be elevated five (5) inches above ground level to allow small wildlife passage.<sup>10</sup>
- 15) A sign with 24-hour emergency contact information shall be posted at the facility entrance
- 16) All electrical system installations shall be performed by or under the supervision of a Maine licensed electrician
- 17) Maximum area of clearing of land that is primarily forestland or wooded vegetation (e.g., sprout re-growth, shrubs) – *Include? How much clearcutting is too much? How much negates meeting the objectives of the Comprehensive Plan regarding the character of Belgrade as well as otherwise? Since it is apparently cost effective to clear large areas of forest land and convert to a solar farm development, a maximum limit on the acreage of such clearing should in my opinion be considered to mitigate wildlife habitat loss, soil erosion, stormwater water runoff generation and phosphorous discharges. Could go with a maximum limit on the total acreage that can be deforested to allow for the development of a solar facility – for example, no more than 20, 15, or 10 acres? Or could provide incentive to developer to minimize acreage cleared – for every acre of forest land cleared, must permanently protect and maintain as open space an acre of land on the same parcel or another parcel in Belgrade.*
- 18) *Should we require minimum of 15% of the developed land area to be reserved as open space as has been required of subdivisions since the late 80s? For example – For solar energy facilities 10 or more acres in developed or disturbed area, a minimum of 15% of this area shall be reserved as open space beyond the developed area. What if the land is leased? In the event the development is on leased land, this acreage of open space shall be protected elsewhere in Belgrade by the applicant. This should be viewed as environmental impact mitigation.*
- 19) Use of herbicides to manage vegetation within the development is prohibited. Mechanical means are to be utilized, which may include animal grazing. *PS There is a guy in Jefferson who makes his living using his goats to “mow” between solar panels.*
- 20) Within 30 days of the completion of facility construction and prior to the start of facility operation, a permit and ordinance compliance inspection report by a Maine registered professional engineer

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<sup>9</sup> Readily available at farm supply businesses. Such fencing meets National Fire Code for human safety. See online example - [https://www.deerbusters.com/metal-deer-fencing/fixed-knot-deer-fence/fixed-knot-fence-rolls/63-x-330-fixed-knot-12-5-ga-17-75-6/?vsrefdom=googleppc&gclid=Cj0KCQiA3fiPBhCCARIsAFQ8QzVpU6d\\_lmXLVWYr1nftie-NyOI30\\_ZEsLGvpuTaxljpR5cJUCUaF14aAh8gEALw\\_wcB](https://www.deerbusters.com/metal-deer-fencing/fixed-knot-deer-fence/fixed-knot-fence-rolls/63-x-330-fixed-knot-12-5-ga-17-75-6/?vsrefdom=googleppc&gclid=Cj0KCQiA3fiPBhCCARIsAFQ8QzVpU6d_lmXLVWYr1nftie-NyOI30_ZEsLGvpuTaxljpR5cJUCUaF14aAh8gEALw_wcB)

<sup>10</sup> Sources – Maine Audubon & Massachusetts’ model ordinances. Purpose to avoid impeding small wildlife travel.

shall be conducted and submitted to the CEO, including recommendations for any required remediation measures and a time table for their implementation.

**Additional proposed new or revised definitions:**

- a) Amend - Impervious surface: The total area to be covered by buildings and associated constructed facilities with low permeability material that is highly resistant to infiltration by water, areas which have been or will be covered by a low permeability material, such as asphalt or concrete and areas such as gravel roads or unpaved parking areas, which have been or will be compacted through design or use to reduce their permeability. Common impervious areas include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and macadam or other surfaces which similarly impede the natural infiltration of stormwater. Pervious pavement, pervious pavers, pervious concrete and under-drained artificial turf fields are all considered impervious. <sup>11</sup>
- b) New - Residential dwelling unit: Use definition in Shoreland Zoning ordinance
- c) New – Multi-unit residential structure: Use definition in Shoreland Zoning ordinance
- d) Rivers, streams or brooks<sup>12</sup> - River, stream or brook means a channel between defined banks. A channel is created by the action of surface water and has 2 or more of the following characteristics.
  - i) It is depicted as a solid or broken blue line on the most recent edition of the U.S. Geological Survey 7.5-minute series topographic map or, if that is not available, a 15-minute series topographic map.
  - ii) It contains or is known to contain flowing water continuously for a period of at least 6 months of the year in most years.
  - iii) The channel bed is primarily composed of mineral material such as sand and gravel, parent material or bedrock that has been deposited or scoured by water.
  - iv) The channel contains aquatic animals such as fish, aquatic insects or mollusks in the water or, if no surface water is present, within the stream bed.
  - v) The channel contains aquatic vegetation and is essentially devoid of upland vegetation.

"River, stream or brook" does not mean a ditch or other drainage way constructed, or

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<sup>11</sup> From Chapter 500, MDEP's Stormwater Regulations. Since we accept stormwater management plans approved by DEP to meet stormwater management requirement of the CDRO, advisable to rely on similar definition of impervious surface areas.

<sup>12</sup> Source - Maine Natural Resources Protection Act – 38 MRSA, subsection 480 B(9). Needed to implement stream setback and crossing standard.

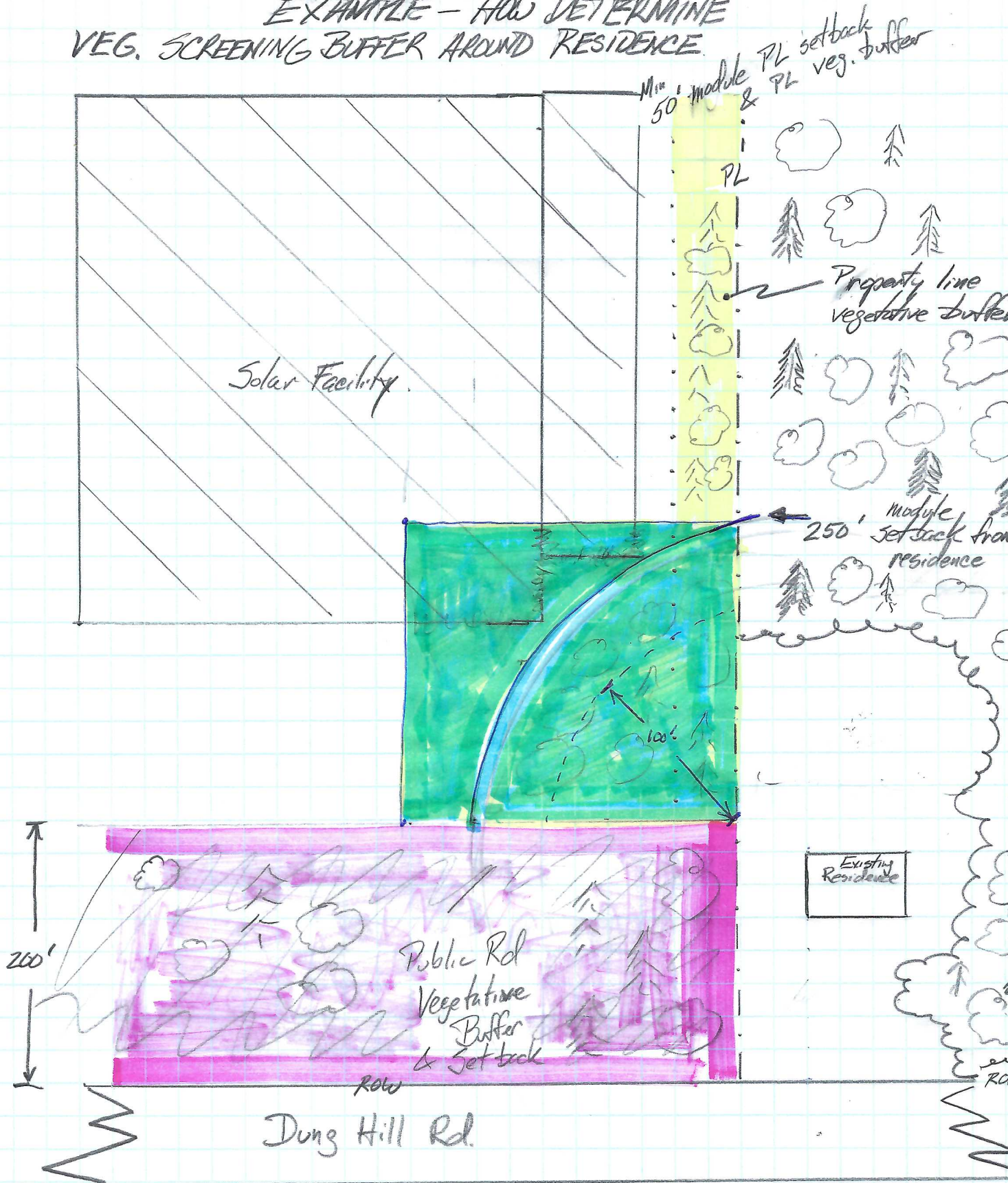
- constructed and maintained, solely for the purpose of draining storm water or a grassy swale.
- e) Tilt – Tilt is the angle of the solar panels or solar collector relative to the horizontal.<sup>13</sup>
  - f) Solar energy system – Means the components and subsystems required to convert solar energy into electric or thermal energy suitable for use. The term applies, but is not limited to, solar photovoltaic systems, solar thermal systems, concentrated solar thermal installations, and solar hot water systems.<sup>14</sup>

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<sup>13</sup> Maine Audubon, Model Site Plan Regulations and Conditional Use Permits to Support Solar Energy Systems in Maine Municipalities, Feb. 2020. Needed to implement maximum height restriction on modules.

<sup>14</sup> Source - Chelsea solar ordinance

# EXAMPLE - HOW DETERMINE VEG. SCREENING BUFFER AROUND RESIDENCE



Residential dwelling unit screening  
Public road setback & vegetative screening  
Property line screening

Scale:  $\frac{1}{4}" = 25'$