

POLLINATOR-FRIENDLY CERTIFICATION FOR MASSACHUSETTS SOLAR PV ARRAYS APPLICATION FORM

Program Background

Solar photovoltaic (PV) arrays can be planted with native vegetation to provide habitat for pollinators and wildlife species. Working with state and federal agencies, pollinator experts, and stakeholders in the agriculture, wildlife biology, and solar energy communities, UMass Clean Energy Extension (CEE) has developed the *Pollinator-Friendly Certification Program* for solar PV facilities in Massachusetts.

Application Instructions

Completion of this application form is required for all solar PV arrays seeking certification through the *UMass Clean Energy Extension Pollinator-Friendly Certification Program*. Before completing this application, please review the following documents (available at <https://ag.umass.edu/clean-energy/current-initiatives/pollinator-friendly-solar-pv-for-massachusetts>):

- *Pollinator-Friendly Certification Criteria for Solar PV Arrays in Massachusetts*
- *Pollinator-Friendly Best Management Practices for Solar PV Arrays*
- *Recommended Plant Species List*

Plans for pollinator-friendly vegetation establishment and maintenance at the solar PV facility should be prepared in conjunction with a professional biologist or ecologist who has relevant experience and expertise in pollinator habitat creation, grassland habitat restoration, and/or knowledge of native New England plant communities. It is expected that the solar facility developer or owner will work with the preparer to assure that the plan is achievable and compatible with on-site needs for energy generation.

Certification and Monitoring Process

Once the project described in the application has been determined to meet certification requirements, CEE will provide the solar facility owner with a Letter of Certification, indicating the site has been certified as “pollinator-friendly,” based on the plans for site establishment and maintenance. For the first three growing seasons following site establishment, submission of an Annual Maintenance Log (using the prescribed form) is required to maintain certification. During the fourth growing season, CEE staff (or a UMass-contracted vendor) will conduct on-site monitoring to determine whether the site is successfully meeting evaluation criteria. If it is, CEE will then re-certify the site. Following re-certification, maintenance logs must continue to be submitted annually, and monitoring will be conducted every third year (i.e. in the seventh growing season, tenth growing season, etc.). If the project is not meeting certification criteria, CEE will work with the solar facility owner to develop an updated management plan to put the project back on track to meet evaluation criteria. If the facility owner chooses not to work to restore the site to meet Certification Criteria, the site will not be re-certified.

For additional details, please review the *Certification Procedure and Fees* document on our website.

Contact and Submission Information

Please submit completed and signed electronic applications to Zara Dowling (zdowling@umass.edu, 413-545-8516). Zara is available to address any questions regarding program guidelines, requirements, or application instructions.

Application Fee information is included in the *Certification and Fees* document on our website. Fee payments can be made via check made out to “UMass,” and mailed to: UMass Clean Energy Extension, 209 Agricultural Engineering Building, University of Massachusetts, 250 Natural Resources Way, Amherst, MA 01003-9295.

BASIC PROJECT INFORMATION

New Solar PV Installation Existing Solar PV Facility

If existing facility, year began commercial operation: _____

Level of Certification Sought: Certified Silver Gold Platinum

PROJECT CONTACT INFORMATION

APPLICANT CONTACT INFORMATION

Contact Person Name: _____ Organization: _____

Mailing Address: _____

Street Address (if different): _____

Contact Phone : _____ Contact E-mail: _____

Check all that apply: Solar Facility Owner Pollinator Plan Developer Landowner

SOLAR FACILITY OWNER CONTACT INFORMATION

(IF DIFFERENT FROM ABOVE)

Name: _____ Organization (if applicable): _____

Mailing Address: _____

Street Address (if different): _____

Contact Phone : _____ Contact E-mail: _____

Check all that apply: Landowner Pollinator Plan Developer

POLLINATOR PLAN DEVELOPER CONTACT INFORMATION

(IF DIFFERENT FROM ABOVE)

Name: _____ Organization (if applicable): _____

Mailing Address: _____

Street Address (if different): _____

Contact Phone : _____ Contact E-mail: _____

Check all that apply: Landowner

LANDOWNER CONTACT INFORMATION

(IF DIFFERENT FROM ABOVE)

Name: _____ Organization (if applicable): _____

Mailing Address: _____

Street Address (if different): _____

Contact Phone : _____ Contact E-mail: _____

Optional: If you are working through the permitting process with a Select Board, Planning Board, Conservation Commission, or other municipal board, and would like to include contact information for relevant municipal officials, please do so below.

Name: _____ Municipal Board: _____

Mailing Address: _____

Contact Phone : _____ Contact E-mail: _____

Name: _____ Municipal Board: _____

Mailing Address: _____

Contact Phone : _____ Contact E-mail: _____

BASIC SITE INFORMATION

Street Address: _____

Approximate Latitude/Longitude: _____

Assessors Map/Plat Number: _____ Parcel/Lot Number _____

Size of Array Footprint (*in acres*): _____

Size of Project Footprint (including security fencing and trim zone) (*in acres*): _____

Current land use at the site (*e.g. existing solar facility, forest, meadow, agricultural field, brownfield, landfill*): _____

SOLAR ARRAY DESIGN

Please provide the following information regarding the solar array design:

Nameplate capacity AC (in MW): _____ (*Note: 1 MW=1000 kW*)

Nameplate capacity DC (in MW): _____ (*Note: 1 MW=1000 kW*)

Expected annual generation AC (MWh): _____ (*Note: 1 MWh=1000 kWh*)

System type: Fixed Tracking Other _____

Does this project include an on-site energy storage system (e.g. batteries)? Yes No

Height of lowest panel edge (in feet): _____

Type of mounting (mono poles, racking, etc.): _____

Description of materials and process used for ground penetration: _____

Number of panels, capacity per panel, and row spacing: _____

If you wish to provide additional descriptive information regarding the solar array design, you may include this information below, or in a typed attachment (Attachment G, see page 6).

PLAN NARRATIVE

EXISTING VEGETATION DESCRIPTION

Please provide a thorough description of existing vegetation at the site. Include the most abundant plant species present at the site, any uncommon or rare native plant species present on or adjacent to the site, and the location and extent of any invasive species present on or adjacent to the site. For undeveloped sites, please describe any soil seed bank expected to persist in the array footprint and perimeter following site development, as well as any native plants which should be left undisturbed in the trim zone surrounding the array.

SOIL DESCRIPTION

Please describe soil and hydrological conditions relevant to plant establishment.

- *Include a map and copy of the soil description for the property, as determined from the USDA NRCS Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>) (Attachment H, see page 7).*
- *Alternatively, or in addition, include site soil test results from a qualified soil testing lab (e.g. <https://ag.umass.edu/services/soil-plant-nutrient-testing-laboratory>) (Attachment I, see page 6).*

REGULATED AREAS

A description of any adjacent wetlands, vernal pools, or Estimated or Priority Habitat should also be included in this assessment. Alternatively, copies of documents filed with the municipal Conservation Commission, Army Corps of Engineers, and MassWildlife may be provided as documentation of these habitat features (Attachments J-L, see page 6).

ESTABLISHMENT PLAN

Please describe the plan for plant establishment at the site. At a minimum, the plan should describe methods for the following components:

- *Control of any invasive species present on or immediately adjacent to the site*
- *Weed control*
- *Seedbed preparation*
- *Seeding methods and timing*
- *Plant establishment methods and timing*
- *A description of any wetland replication areas or stormwater detention basins to be established on site*
- *A description of any special features to be incorporated into the site (e.g. bee nesting habitat, perennial water source, educational signage, wildlife habitat)*

MAINTENANCE PLAN

Please describe anticipated vegetation management activities during the establishment phase (first 3-5 years), as well as the long-term plan for maintenance after establishment. At a minimum, the plan should describe anticipated methods for the following components:

- *Mowing timing and frequency*
- *Weed control and invasive plant control*
- *Trim zone management*
- *Maintenance of any special features (no-spray signage, nesting habitat, bird boxes, wildlife habitat, public outreach features, perennial water source)*
- *A plan for transferring documentation and information regarding the pollinator-friendly solar PV certification to the new owner, in the case of the sale of the solar facility*

SEED MIXES AND PLANTINGS

SEED MIXES

Please *initial* below to certify the following.

_____ The applicant has confirmed with the seed vendor that seeds to be planted on-site have not been pre-treated with insecticide or fungicide.

_____ The amount of seed to be planted has been determined according to the seed provider’s recommendation.

Below, please list the Seed Mixes to be used on-site. Then, fill out a separate Seed Mix table for each seed mix to be used at the site, and attach it as Attachment A1 through A# (see page 6). This might include seed mixes within the array footprint, in the array perimeter, in stormwater detention basins or wetland replication sites. The Seed Mix table is included on page 9, but can also be downloaded in spreadsheet format from the UMass Clean Energy Extension website.

Seed Mix Name	Location to be Used	Attachment
		A1
		A2
		A3
		A4

PLANTINGS

Please *initial* below to certify the following.

_____ The applicant has confirmed with the plant vendor that plants to be planted on-site have not been pre-treated with insecticide or fungicide.

Vegetation screen: *Please check one of the boxes below.*

- No vegetation screen is being established on-site.
- The vegetation screen will include only native species.
- Municipal permitting authorities require a vegetation screen that includes non-native species. *(If so, please include Order of Conditions indicating required vegetation, as Attachment M, see page 6.)*

Below, please list the locations where plantings of plugs, rootstock, saplings, etc. will be established on-site. Then, fill out a separate Plantings table for each location, and attach it as Attachment B1 through B# (see page 6). This might include plantings in the trim zone, as a vegetation screen, or in stormwater detention basins or wetland replication sites. The Plantings table is included on page 10, but can also be downloaded in spreadsheet format from the UMass Clean Energy Extension website.

Plantings Name	Location to be Used	Attachment
		B1
		B2
		B3
		B4

SPECIAL FEATURES

Fencing: *Please check one of the boxes below.*

- New arrays: A 6-12 inch gap will be left at the bottom of the fence for wildlife passage
- Existing arrays: A hole at least 6 inches high and 18 inches wide will be cut in each corner of the array fencing to allow wildlife passage through the array.
- Other (please describe): _____

No Spray Signage: *Please check one of the boxes below.*

- The site is not in an area served by a Mosquito Control Project or District area, and is not at risk of being included in public pesticide spraying programs.
- The site is not adjacent to a road and therefore is not at risk of being included in public pesticide spraying programs.
- No Spray Signage will be maintained on-site. An annual request for exclusion from spraying for mosquitoes will be made at:
<http://www.mass.gov/eea/agencies/agr/pesticides/mosquito/pesticide-application-exclusions.html>

Bee Nesting Habitat: *Please check one or more of the boxes below.*

- No nesting habitats for bees will be established.
- Ground nesting habitats for bees will be established.
- Cavity nesting habitats for bees will be established.

Additional Wildlife Habitat: *Please check one or more of the boxes below.*

- No additional wildlife habitat will be established.
- Bird boxes will be installed. Please list target species:

 Habitat features to support rare or uncommon wildlife species will be established on-site. Please list species features are designed to support: _____

 Other wildlife habitat features will be established on-site. Please list species features are designed to support: _____

Perennial Water Source: *Please check one or more of the boxes below.*

- No perennial water source will be established.
- A perennial water source will be established on-site.
- A perennial water source exists within 0.25 miles of the site, and the applicant is providing documentation that the water source will be maintained long-term.

Public Outreach Features: *Please check one or more of the boxes below.*

- No educational features will be installed.
- Three or more educational signs will be installed adjacent to the array.
- An educational display board will be installed adjacent to the array.
- A bench will be installed adjacent to the array.

APPLICATION COMPONENTS

Please bundle all application components into one PDF document in the order indicated below.

REQUIRED COMPONENTS

Please check boxes to indicate the following application components are included.

- Completed Application Form**
- Plan Narrative** (*see page 3*)
- Attachments A1-A# - Seed Mix Tables** (*see page 4*)
- Attachments B1-B# - Plantings Tables** (*see page 4*)
- Attachment C - Existing Site Map:** A satellite image of the site, showing existing conditions, including 1) property boundaries, 2) wetlands on-site or within 200 ft, 3) Estimated or Priority Habitat, and 4) locations of any rare plant species or invasive plant infestations noted in the site description.
- Attachment D – Establishment Site Plan:** A site plan of the solar array from above, showing 1) the layout of all array modules, 2) location of any wetland replication areas or stormwater detention basins, 3) areas to be planted with seed, labeled with Seed Mix names, 4) areas to be planted with plants, labeled with Plantings names, 5) security fencing, 6) trim zone, 7) location of any special features, if applicable. If all components cannot be included easily on one site plan, provide multiple maps indicating different features, but be sure all maps are drawn at the same scale and show the same extent, to ensure easy comparison and visualization.
- Attachment E – Maintenance Site Plan:** A site plan depicting each zone where different types of management are expected to be carried out, with reference to the Maintenance Plan narrative.
- Attachment F – Solar Module Design:** A design drawing (from the side) of a representative solar module with dimensions showing panel tilt and elevations from ground.

OPTIONAL ATTACHMENTS

Please check boxes below to indicate if any of the following attachments are included.

- Attachment G – Solar Array Design Details** (*see page 2*)
- Attachment H - An NRCS soils map of the site, including soil descriptions** (*see page 3*)
- Attachment I - Soil sample test results, including a map of soil sampling sites** (*see page 3*)
- Attachment J - Copies of documents submitted to the municipal Conservation Commission and MassDEP relevant to wetlands permitting; any Order of Conditions or permits received** (*see page 3*)
- Attachment K - Copies of documents submitted to MassWildlife for MESA review, regarding Estimated or Priority Habitat; any response received** (*see page 3*)
- Attachment L - Copies of documents submitted to the Army Corps of Engineers; any response received** (*see page 3*)
- Attachment M - Copy of municipal permit indicating that non-native plantings must be included in the vegetation screen** (*see page 4*)

Please provide a list of any additional attachments, labeled Attachment N through Attachment Z.

SIGNATURES AND ATTESTATIONS

Prior to submitting the Application Form, please read and sign as directed below.

Applicant

I/we hereby certify that the information submitted regarding the current site conditions, solar array design, and plans for establishment and maintenance of vegetation at the site is accurate and complete to the best of my/our knowledge and intentions. Further, I/we agree, conditional on being certified as a Pollinator-Friendly Solar PV Facility, to submit an annual maintenance log, through a template provided by the University of Massachusetts Clean Energy Extension. I agree to coordinate with the University of Massachusetts Clean Energy Extension to allow access for scheduled monitoring of the site (after 3 years, and every other year thereafter). I/we understand that failure to establish and maintain native plant vegetation on the site, maintenance of special features, and annual reporting, may result in the need for revision of the Site Establishment and Maintenance Plan, or eventual disqualification of the facility as a Certified Pollinator-Friendly Solar PV Facility.

Signature of Applicant

Date

Signature of Solar Facility Owner
(if different from applicant)

Date

Landowner

I hereby certify that I am agreeable to the establishment and maintenance of a pollinator-friendly habitat and Certification as described in this application.

Signature of Landowner or
Responsible Party

Date

If Responsible Party, please state relationship to Landowner _____

Instructions for filling out Seed Mix and Plantings tables

Please fill out a separate Seed Mix table for each seed mix to be used on-site.

Please fill out a separate Plantings table for each location where plants will be established.

Seed Mix Table

Seed Mix Name	<i>Please choose a name to identify the seed mix. This can be as simple as "Seed Mix A" or "Wetland Seed Mix."</i>
Location to be used	<i>Briefly describe the location where the seed mix will be used (e.g. "under the solar panels and between rows" or "in the wetland replication area").</i>
Common Name	<i>List the plant's common name (e.g. "Golden zizia").</i>
Scientific Name	<i>List the plant's scientific name (e.g. "Zizia aurea").</i>
% of Mix	<i>List the percentage of the seed mix composed of this plant.</i>
Seed Geographic Origin	<i>If available from the seed vendor, please list the geographic origin of the plants the seed was collected from. Use the two-letter abbreviation for state names (e.g. "CT," "western PA")</i>
MA Status	<i>List the plant's status in Massachusetts - Native to MA, Native to New England, or Native to Northeast. If native to MA, list occurrence (e.g. "widespread," "fairly widespread," "uncommon," or "rare").</i>
Approx. Bloom Period	<i>List the approximate months the plant is expected to be in bloom (e.g. "June-September"). If not a flowering plant, list "N/A".</i>
Soil Requirements	<i>Briefly list soil condition needs (e.g. "moist" or "dry, sandy soils").</i>
Specialist Bee Host?	<i>Write "yes" or "N/A" to indicate if plant is specialist bee host. If plant is a specialist bee host not listed on the Xerces specialist bee list, please list bee species name(s) and reference in Notes section.</i>
Rare Lepidoptera Host?	<i>Write "yes" or "N/A" to indicate if plant is a host for uncommon or rare butterflies or moths. If plant is a rare Lepidoptera host not listed on the "Host for Butterflies of Conservation Concern" list, please list Lepidoptera species name(s) and reference in Notes section.</i>
Notes	<i>Please include any additional notes, including insect species names and references for specialist bee or Lepidoptera host plants. If any plant species not native to MA are included in the list, please indicate why. Additional notes can alternatively be included on a separate page.</i>

Plantings Table

Plantings Name	<i>Please choose a name to identify the planting site. This can be as simple as "Planting Site A" or "Vegetation Screen."</i>
Location to be used	<i>Briefly describe the location where the plantings will be installed (e.g. "between fence and roadside" or "in the wetland replication area").</i>
Planting Density	<i>Describe planting density as # of plants per linear distance measure or area (e.g. "1 plant every 5 feet" or "3 plants in 20 sq. ft. area")</i>
Total # of Plants	<i>List total number of plants of this species to be planted in this location.</i>
Plant Geographic Origin	<i>If available from the plant vendor, please list the geographic origin of the plants the plant was propagated from. Use the two-letter abbreviation for state names (e.g. "CT," "western PA")</i>
Other Columns	<i>Fill out other columns as described above for the Seed Mix table.</i>

SEED MIX TABLE

Attachment: _____

SEED MIX NAME: _____

Location to be used: _____

Please fill out one row for each species of plant to be included in the seed mix to be used at this location.

Common Name	Scientific Name	Percentage of Mix	Seed Geographic Origin	MA Status	Approx. Bloom Period (if applicable)	Soil Requirements	Specialist Bee Host?	Rare Lepidoptera Host?

NOTES: _____

PLANTING TABLE

Attachment: _____

PLANTINGS NAME: _____

Location to be used: _____

Please fill out one row for each species of plant to be planted at this location.

Common Name	Scientific Name	Planting Density	Total # of Plants	Plant Geographic Origin	MA Status	Approx. Bloom Period (if applicable)	Soil Requirements	Specialist Bee Host?	Rare Lepidoptera Host?

NOTES: