POLLINATOR-FRIENDLY CERTIFICATION FOR MASSACHUSETTS SOLAR PV ARRAYS
APPLICATION FORM - 2022

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/services/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 an environmental professional 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 rehabilitate 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 our secure on-line payment portal or via check. Please see the *Certification Procedure and Fees* document for more information.

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 (fenced-in area under, between, and adjacent to rows of panels) (in acres):_____
Size of Project (including trim zone, newly created access roads, energy storage pads, etc.) (in acres):
_____

Current land use at the site (e.g. existing solar facility, forest, meadow, agricultural field, brownfield, landfill):_____
If existing solar facility began operation within the previous 5 years, please list previous land use:
_____

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 (*please note if row spacing is measured on-center or trailing edge to leading edge*):

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 soil description for the property, as provided by the 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

Provide a description of any adjacent wetlands, vernal pools, or Estimated or Priority Habitat. If permitting documents were filed with the municipal Conservation Commission, Army Corps of Engineers, and MassWildlife for the project, please attach a copy. If necessary to understand permit conditions, include site plans filed as part of the permit application (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 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 post-establishment. At minimum, the plan should include:

- *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)*
- *In the event of sale of the solar facility, a plan for transferring certification documents to the new owner, as well as providing contact information for the new owner to CEE*

In addition, please include a 1-2 page Vegetation Monitoring & Maintenance Table *summarizing monitoring and maintenance plans over the short and long-term* (see example, page 8).

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 include these tables as spreadsheets in one workbook labeled 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 *can be downloaded in spreadsheet format from the UMass Clean Energy Extension website.*

Attachment	**Seed Mix Name**	**Location to be Used**	**Total Acreage**	**Seeding Rate*** (PLS per sq. ft.)
A1				
A2				
A3				
A4				

***If the Seeding Rate is not in the range of 40-65 PLS per sq. ft., please provide an explanation of why a lower or higher seeding rate is justified.*

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 these tables as spreadsheets in one workbook labeled 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 *can be downloaded in spreadsheet format from the UMass Clean Energy Extension website.*

Attachment	**Plantings Name**	**Location to be Used**
B1		
B2		
B3		
B4		
B5		
B6		

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: https://www.mass.gov/how-to/how-to-request-an-exclusion-or-opt-out-from-wide-area-pesticide-applications

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 application components, excluding Attachments A & B, into one PDF document in the order indicated below. Attachments A & B should be submitted in spreadsheet format in one workbook file. Large engineering site plans may be included in a separate PDF if desired to limit total file size.

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, please attach in spreadsheet format)*

☐ **Attachments B1-B# - Plantings Tables** *(see page 4, please attach in spreadsheet format)*

☐ **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 have personally examined and am familiar with the information submitted herein, and, based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.

_____ _____

Signature of Landowner Date

EXAMPLE: Vegetation Monitoring & Maintenance Table

Below is an example of a Vegetation Monitoring & Maintenance Table*, which should be included as part of the Maintenance Plan for the site (page 3). The table below is provided as an example only, and should not be construed as an endorsement of the specific maintenance activities described. Please use column headers comparable to the example, but adjust locations, activities, frequencies, and timings as appropriate for your site. A template version of this table is included in the* Table Templates *workbook, available on the CEE website.*

Location	Growing Season/Year (Post-Seeding)	Monitoring/ Maintenance Activity	Annual Frequency	Annual Timing
All Areas	First (Year 1)	Vegetation monitoring to identify invasive species and mowing/trimming needs	3x	early May, late June/early July, September
	Second (Year 2)	Vegetation monitoring to identify invasive species and mowing/trimming needs	3x	early May, late June/early July, September
	Subsequent Years to Establishment (e.g. Year 3, possibly Year 4)	Vegetation monitoring to identify invasive species and mowing/trimming needs	2x	early May, July/August
	Post-Establishment (e.g. Years 5-30)	Vegetation monitoring to identify invasive species and trimming needs	1x	July/August
	All Years (e.g. Years 1-30)	Invasive plant control: spot-mowing, manual removal, or herbicide use - see narrative	1x	Dependent on species - see narrative
		Maintenance of special features (signage, bee nesting habitat)	1x	October
Array Footprint	First	Mowing to 6" height of full array footprint; spot-mowing of non-native species as needed	2-5x, dependent on monitoring	early May - after September 30
	Second	Mowing to 6" height of full array footprint; spot-mowing of non-native species as needed	2-3x, dependent on monitoring	early May - after September 30
	Subsequent Years to Establishment (e.g. Year 3, possibly Year 4)	Mowing to 8" height, spot-mowing of non-native species as needed	1-2x, dependent on monitoring	March 1 - May 1, once during growing season if needed
	Post-Establishment (e.g. Years 5-30)	Mowing to 8" height	1x	March 1 - May 1
Array Perimeter	Establishment Period (Years 1-3, possibly 4-5)	Same as Array Footprint		
	Post-Establishment (e.g. Years 5-30)	Mowing 1/3 of perimeter each year to 8" height, spot-mowing of non-native species as needed	1x	October 1 - December 1
Stormwater Basins	All Years	Invasive plant control: spot-mowing or manual removal - see narrative	1x	Dependent on species - see narrative
Trim Zone	All Years	Remove all invasive species, trim all trees/shrubs over 10' in height to no more than 4'	1x	If few invasives present, October; otherwise, see narrative