

## ASTGU ANNUAL REPORT

### PURPOSE

This Annual Report form is required to be completed and submitted annually for all projects with the MA Department of Energy Resources (DOER) which received qualification as an Agricultural Solar Tariff Generation Unit (ASTGU) under the SMART program. The form is provided to demonstrate conformance with the general provisions required for ASTGUs in 225 CMR 20.00; in particular pertaining to Section 20.06(1)(d) therein as well as associated ASTGU Guidelines; and specifically pertaining to annual reporting requirements.

The completed form will be reviewed by DOER and the MA Department of Agricultural Resources (MDAR) to determine that the farm is in conformance with all ASTGU provisions in general under the SMART Program, although more specifically to the annual production requirements.

### BASIC FARM INFORMATION

Farm Contact Person Name: Iain Ward  Farm Owner  Farm Operator

Farm Name: Soland, LLC

Legal Structure:  Sole Proprietor  LLC  Corporation  
 Partnership  Other \_\_\_\_\_

Mailing Address: P.O. Box 41, West Wareham, MA 02576

Street Address (if different): N/A

Contact Phone: Available upon request Contact E-mail: Available upon request

Check all that apply:  Solar facility owner  Landowner  Applicant

Current Type of ASTGU Farm Operation (Check all that apply):

Vegetables  Fruit  Livestock  Poultry  Hay  
 Nursery  Other \_\_\_\_\_

Total Acreage in ASTGU Farm Production: 6.5 acres

Gross Annual Revenue for ASTGU Farm Production: Total \$0 (revenue to be quarterly installments starting March 2026)

Are any major modifications to the farm business expected in the next 5 years?  Yes  No  
(Check all that apply.)

Business Legal Structure  Operation Type  Expansion  Diversification  
 Retirement  Sale  Subdivision  Other \_\_\_\_\_

### BASIC SOLAR PROJECT INFORMATION

Solar System Company Owner: Greenbacker Renewable Energy Company, LLC

Solar System Company Address: 230 Park Ave, Suite 1560, New York, NY 10169

Solar Company Contact Person/email/tel#: Meg Taylor, Field Operations;  
fieldops@greenbackercapital.com; 888-570-6952

**ASTGU Project Start-Up/History Information:**

Date ASTGU Approved by DOER: Pre-Determination Application Approval received on  
9/27/21

Date Solar Portion of ASTGU Project Commenced Construction: 12/6/23

Date Solar Portion of ASTGU Project was Completed & Operational: 6/17/25

Date Original Agricultural Portion of the ASTGU Project Commenced: Spring 2025

Date Original Agricultural ASTGU Portion of Project Harvested/Sowed Products: Fall 2025

How many complete years, that is both solar and agricultural production, has the ASTGU been in operation? Less than one year, began in June 2025.

**SOLAR ARRAY DESIGN – PLEASE PROVIDE AS-BUILT SYSTEM INFORMATION**

Please provide the following information regarding the solar array design:

Nameplate capacity AC (in MW): 0.49 MW (Note: 1 MW=1000 kW)  
Expected annual generation AC (MWh): 1,274 MWh (Note: 1 MWh=1000 kWh)  
Acreage of farmland over which array is to be installed: 6.5 acre  
System type:  Fixed  Tracking  Other \_\_\_\_\_  
Height of lowest panel edge (in feet): 10 ft when horizontal  
Height of lowest elevated horizontal mounting (in feet): 10 ft

Type of mounting (mono poles, racking, etc.): Single-axis tracking rack supported by driven I-Beam piers.

Description of materials and process to be used for ground penetration: Holes for piles were pre-drilled down 4' and then piles were driven into the ground so that lighter weight pile driving machines could be used to reduce soil compaction. Plastic matting was used underneath all necessary machinery on the bogs. The torque tubes and solar panels were installed by hand with personnel on ladders to reduce vehicular travel in the vines, avoiding further soil compaction.

Number of panels, capacity per panel, and panel spacing: The array has 1,794 solar panels that have a capacity of 550W each. The racking system is installed in a east/west direction, and the panel rows are spaced 23 feet apart (17.5 feet panel edge to panel edge spacing).

*If you wish to provide additional descriptive information regarding the solar array design, including any system changes since original completion, you may include this information below, or in a typed attachment labeled "Solar Array Design."*

N/A

## AGRICULTURAL PLAN FOR DUAL-USE AREA

Planned agricultural use, Year 1. Check all that apply.

- Vegetable, fruit, grains, for human consumption
- Hay
- Livestock production
- Poultry production
- Horticulture
- Floriculture
- Aquaculture
- Other, please describe: \_\_\_\_\_

Please fill the Crop Table results following this section for horticulture, flowers, vegetable, fruit, grain, and hay crops for your present year of operation. Fill out one Crop Narrative for each crop, detailing anticipated crop management (planting, irrigation, soil amendments, harvesting) and equipment to be used. **Crop Table – Current Season** follows this section. Also, please also fill out a **Crop Table – Next Season** and corresponding narrative at the end of this section with your best information available.

Please fill out the Grazing Table results following this section for livestock and poultry production for your present year of operation. Please also fill out the Grazing Narrative, detailing anticipated pasture and animal management and equipment to be used. **Grazing Table – Current Season** follows the Crop Table section. Also please fill out a **Grazing Table – Next Season** and corresponding narrative at the end of this section with your best information available.

### **Additional comments regarding agricultural production for Year 1:**

How did the Agricultural Production perform versus expectations? Please explain why/why not if you can:

Construction work associated with the solar facility continued throughout the 2025 growing season. It was anticipated in the Pre-Determination Application that there would be no cranberry yield in the first year if construction was not completed by the start of the growing season. Additionally, the extreme cold conditions in February of 2025 caused significant winter injury to the Black Cat vines. Interestingly, the vines under the panels suffered less than the vines surrounding the panels. In spite of the winter injury and construction, the cranberry crew coordinated activities with the construction crew such that a 188 barrel (18,800lb) cranberry crop was able to be harvested this Fall. The cranberry production onsite is expected to increase in years two and three as the bogs recover from construction-related impacts and winter injury.

Did you plant the crops/graze the animals as you originally intended when your Pre-Determination Application was approved? If not please explain.

Yes, the crop remained in cranberry production.

Were the products marketable anticipated? Please explain how the production values (weight/bushels etc) were determined.

The 213 barrels of cranberries dry harvested at the Black Cat bogs were accepted into Ocean Spray and of those, 188 barrels qualified as usable or marketable processed fruit for products like juice, sauce and sweet/dried cranberries. The total qualified barrels added up to approximately 88% usable fruit. Effort will be made to qualify fruit from the Black Cat bogs for Global G.A.P. certified which would allow them to be marketed as premium fresh fruit.

What occurred during the current season that wasn't anticipated? Positive & Negative.

An unanticipated event was the sale of adjacent cranberry bogs to the Town of Plymouth for conservation purposes which resulted in restricted access to flood water. To address this, dry harvesting of the bogs was conducted. While this is a more labor-intensive process and somewhat reduces the cranberry yield, the harvested cranberries are considered premium quality and can be sold for more money than the water harvested fruit provided they are Global G.A.P. certified.

What Changes/Modifications do you expect to make to improve on production if needed?

Automation of the irrigation pump occurred and this improves water conservation efforts by allowing irrigation events to take place early in the morning and for cycling of the pump during frost events.

Do you expect to grow the same crops on the land in years 2 and 3? Briefly describe your crop rotation plan and what you expect to be growing on the land for the next 5 years Will the same equipment be used? If not, is current array design compatible with future crop management needs and equipment?

Yes, we will continue growing cranberries for the duration of this ASTGU program (ie. 20 years). Discussions are ongoing about whether the bog will continue to be dry harvested or if the operation will go back to water harvesting should a new water supply be developed. In either case, the respective equipment and agricultural activities are compatible with the solar array.

<b>Table A: Crop Production – Current Season</b>					
<b>Crop</b>	<b>Area planted (Row length and width or acreage, as appropriate)</b>	<b>Planting date(s) (approximate)</b>	<b>Harvest date(s) (approximate)</b>	<b>Expected productivity, total pounds harvested without dual use</b>	<b>Actual productivity, pounds, with dual use</b>
Cranberries	The existing cranberry bogs and vines remained in place (total 6.5 acres).	The cranberry vines were not replanted.	9/21/25-10/10/25	23,000 lbs (230 barrels)	18,800 lbs total (188 barrels)

## **CROP NARRATIVE – Current Season**

*Please detail the crop management for this past season, including approximate **dates** and **equipment** used. The purpose of this form is to provide empirical data regarding compatible equipment usage and crop management needs. If you need additional space, please include a typed attachment labeled “Crop Narrative.”*

Crop: Cranberry

Planting Plan: The existing cranberry vines stayed in place on the bog.

Soil Amendment Plan: Liquid 8-3-14 fertilizer was applied to the bog via chemigation in early July at a rate of 6 gallons per acre to support vine health. The lower N this year was in response to the winter injury and the anticipation of dry harvesting the bogs.

Cultivation Plan: Cranberry cultivation practices followed UMass Cranberry Station’s best management practices for irrigating, fertilizing, spraying and weeding the bog. The vine canopy was trained through pruning during the dry harvest, and this should increase fruit quality in 2026.

Irrigation Plan: Weekly irrigation of the bog occurred during the growing season to support vine health and fruit maturation. This is consistent with the UMass Cranberry Station recommendation of approximately 1 inch of irrigation water per week depending upon weather events.

Pesticide/Herbicide Plan: Black Cat bog was monitored weekly for disease and pests as part of the farm’s Integrated Pest Management (IPM) program. The pesticides Invertid 2F, Altacor, Fanfare were applied to control insect pest outbreaks on the bogs. Bravo Weather Stik and Proline were applied to manage fungal fruit diseases. Explorer was applied to manage weed pressure on the bog. All applications were performed by a licensed pesticide applicator and followed respective pesticide label information for the application rates, re-entry intervals and pre-harvest intervals.

Harvest Plan: The bog was dry harvested this fall using Furford Picker/Pruners (aka Walk Behinds) that collected the fruit into burlap bags. The bags were then carried off the bog in buggies and loaded onto trucks for transport. The harvested cranberries were delivered to the cranberry handler Ocean Spray.

<b>Table B: Grazing Production – Current Season</b>							
<b>Type(s) of animal grazed</b>	<b>Area grazed (acreage)</b>	<b>Grazing pressure # animals per acre</b>	<b>Purpose (e.g. meat, dairy, eggs)</b>	<b>Grazing period(s)</b>	<b>Harvest date(s) if applicable</b>	<b>Expected productivity with solar array</b>	<b>Actual productivity with solar array</b>
N/A							

**GRAZING NARRATIVE – Current Season**

*Please detail the past season animal and pasture management, including **dates** and **equipment** used. The purpose of this form is to provide empirical data regarding compatible equipment usage and production needs. If you need additional space, please include a typed attachment labeled “Grazing Narrative.”*

Type(s) of Animals Grazed: N/A

Pasture Management Plan: List any anticipated seeding, soil amendment, irrigation, pesticide, mowing, etc., including approximate dates and equipment used.

N/A  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Animal Management Plan:

For each type of animal grazed, describe management regarding housing/shelter, water source, fencing, movement, disease treatment, harvest, etc. that was carried out within the solar array area. Describe equipment used in these activities.

N/A  
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Describe any modifications to the solar array design that were made in order to reduce the risk of animal damage to the solar array, or risk of electrocution to animals.

N/A  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

<b>Table A: Crop Production – Next Season</b>					
<b>Crop</b>	<b>Area planted (Row length and width or acreage, as appropriate)</b>	<b>Planting date(s) (approximate)</b>	<b>Harvest date(s) (approximate)</b>	<b>Expected productivity, total pounds harvested without dual use</b>	<b>Expected productivity, total pounds, with dual use</b>
Cranberries	6.5 acres	N/A	September/ October depending on the weather and ripeness	60,000 lbs (600 barrels)	45,000 lbs (450 barrels)

## CROP NARRATIVE – Next Season

*Please detail the crop management planned for next season, including approximate **dates** and **equipment** used. The purpose of this form is to provide planned data for the upcoming season regarding compatible equipment usage and crop management needs. If you need additional space, please include a typed attachment labeled “Crop Narrative.”*

Crop: Cranberry

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Planting Plan: The existing vines will remain in place. Following the UMass Cranberry Station’s recommendations, the bog will be fertilized to support the vines’ health and cranberry yield.

Soil Amendment Plan: Sul-Po-Mag is planned to be applied in May at a rate of 100 lbs/acre. An 8-13-4 liquid fertilizer at a rate of 6 gallons/acre is planned to be applied in July. Additional fertilizer may be applied as vine conditions and fruit development dictate.

Cultivation Plan: Agricultural activities for cranberry cultivation occur year-round and follow UMass Cranberry Station’s best management practices. These activities include weeding, irrigating, fertilizing, spraying and harvesting of the bogs throughout the growing season as needed.

Irrigation Plan: The current irrigation infrastructure will remain in place. Weekly irrigation of the bog will occur at an average rate of 1 inch per week during the growing season.

Pesticide/Herbicide Plan: Pesticides and herbicides will be applied in accordance with product labelling and the current UMass Cranberry Station Chart Book. Included in this approach is the use of IPM practices to target specific pests observed in the field. This work generally occurs April - August with timing of applications dependent upon pest threshold, pre-harvest intervals and handler requirements.

Harvest Plan: Dry harvesting operations will continue next season using the same equipment as this current season.

<b>Table B: Grazing Production – Next Season</b>							
<b>Type(s) of animal grazed</b>	<b>Area grazed (acreage)</b>	<b>Grazing pressure # animals per acre</b>	<b>Purpose (e.g. meat, dairy, eggs)</b>	<b>Grazing period(s)</b>	<b>Harvest date(s) if applicable</b>	<b>Expected productivity without solar array</b>	<b>Expected productivity with solar array</b>
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**GRAZING NARRATIVE – Next Season**

*Please detail the next season animal and pasture management, including **dates** and **equipment** used. The purpose of this form is to provide planned data for the upcoming season regarding compatible equipment usage and production needs. If you need additional space, please include a typed attachment labeled “Grazing Narrative.”*

Type(s) of Animals Grazed: N/A\_\_\_\_\_

Pasture Management Plan: List any anticipated seeding, soil amendment, irrigation, pesticide, mowing, etc., including approximate dates and equipment used.

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Animal Management Plan:

For each type of animal grazed, describe management regarding housing/shelter, water source, fencing, movement, disease treatment, harvest, etc. that was carried out within the solar array area. Describe equipment used in these activities.

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Describe any modifications to the solar array design that were made in order to reduce the risk of animal damage to the solar array, or risk of electrocution to animals.

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## Waiver for Decreased Yield

### i. Waiver for Decreased Yield

Due to unforeseen circumstances, such as but not limited to weather events, pests, or change in crops, the projected agricultural yield for any given year may be lower than stated in the agricultural plan or previous year's annual report. In these instances, an applicant can request a waiver to the Department for the decreased yields. The applicant must demonstrate to the satisfaction of the Department, and in consultation with MDAR, that a waiver is warranted for good cause. Waiver requests must be submitted by November 1st of the applicable calendar year and sent to [DOER.SMART@mass.gov](mailto:DOER.SMART@mass.gov).

With respect to the reporting obligations associated with qualification of this project as an Agricultural Solar Tariff Generation Unit (ASTGU) under the SMART program, we would note that this project was approved in September 2021 and is subject to the ASTGU guidelines in place at that time (Guideline effective date April 26, 2018). Accordingly, the Black Cat Solar, LLC ASTGU project is not subject to this provision.

### ii. Failure to Report

If the ASTGU fails to submit an annual report, the Department may declare the project ineligible for the ASTGU adder for one year. If the annual report is not completed for a second year, then the Department may permanently disqualify the ASTGU from continuing to receive the ASTGU Adder for the remainder of the STGU's tariff term.

## SIGNATURES AND ATTESTATIONS

Prior to submitting the Pre-Determination Form, please read and sign as directed below.

### 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.

DocuSigned by:  
*Jess Roden*  
9C6100C961B44D5

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Signature of Landowner

11/26/2025

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Date

### Farm Operator and Landowner

I/we hereby certify that the information submitted regarding the current farm conditions and practice and the Agricultural Plan for the Dual-Use Area is accurate and complete to the best of my/our knowledge and intentions, and that I/we have engaged with the University of Massachusetts Amherst Clean Energy Extension and thereby its agricultural extension service to review the Agricultural Plan and its compatibility with the solar array structures and shading. Further, I/we agree, conditional on being provided eligibility to the SMART program as an ASTGU, to submit a report, through a template provided by the University of Massachusetts Clean Energy Extension, annually throughout the duration of the SMART incentive with ASTGU adder, on the operations and productiveness of the solar array and agriculture along with any changes to the Agricultural Plan for the following year. I/we understand that failure to maintain productive agricultural activities and annual reporting may result in the disqualification of the facility as an ASTGU in the SMART program.

*Vain Ward*

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Signature of Farm Operator

11/26/25

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Date

DocuSigned by:  
*Jess Roden*  
9C6100C961B44D5

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Signature of Landowner

11/26/2025

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Date

### Solar Facility Owner

I hereby certify that the information submitted regarding the Solar Array Description and inputs and outputs of the Shading Analysis is accurate and complete to the best of my/our knowledge and intentions.

DocuSigned by:  
*Jess Roden*  
9C6100C961B44D5

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Signature of Solar Facility Owner

11/26/2025

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Date

**Commonwealth of Massachusetts**  
**Executive Office of Energy and Environmental Affairs**  
**DEPARTMENT OF ENERGY RESOURCES**  
**FINAL STATEMENT OF QUALIFICATION**  
**Pursuant to the Renewable Energy Portfolio Standard Class I and the Solar**  
**Massachusetts Renewable Target (SMART) Program -**  
**225 CMR 14.00 and 225 CMR 20.00**

This Statement of Qualification, provided by the Massachusetts Department of Energy Resources (“Department”), signifies that the Generation Unit identified below, as described in Statement of Qualification Application ID number SMAES\_44283, meets the requirements for eligibility as a Solar Tariff Generation Unit, pursuant to the Solar Massachusetts Renewable Target (SMART) Program 225 CMR 20.00, and meets the requirements for eligibility as a RPS Class I Renewable Generation Unit, pursuant to the Renewable Energy Portfolio Standard – Class I, 225 CMR 14.00.

Generation Unit Name, Capacity,  
and Location:

<b>BERE55WATERCOURSE02360</b> <b>498 kW AC</b> <b>74 Watercourse Road, Plymouth MA 02360</b>
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Authorized Representative’s Name  
and Address:

<b>Donal Mahoney</b> <b>Greenbacker Capital</b> <b>230 Park Ave, Suite 1560, New York NY 10169</b>
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This Generation Unit’s unique Massachusetts RPS Identification Number is listed below and matches its Application ID number. Please include the ID number on all correspondence with DOER and the Solar Program Administrator.

**MA RPS Class I ID #: SMAES\_44283**

As a Standalone Qualifying Facility Solar Tariff Generation Unit located in Eversource MA East that is eligible under Block 5 as a 498 kW AC generation unit, BERE55WATERCOURSE02360 is entitled to a Base Compensation Rate of \$0.18049 with a Greenfield Subtractor of -\$0.00000/a Location Based Adder of \$0.06000/an Off-taker Based Adder of \$0.00000/Solar Tracking Adder of \$0.01000/an Energy Storage Adder of \$0.04790/a Pollinator Adder of \$0.00000 resulting in a Total Compensation Rate of \$0.29839. The final Solar Incentive Payment Rate for Standalone systems is determined by subtracting the Value of Energy from their Total Compensation Rate. The Value of Energy may vary from month to month and will be determined by your Electric Distribution Company based on the Qualifying Facility. The Generation Unit’s qualification as a Solar Tariff Generation Unit will be in effect for 20 years, starting upon the Generation Unit’s Solar Payment Effective Date of 12/26/2024. Following this period, the Generation Unit will remain qualified as an RPS Class I Renewable Generation Unit.

<b>Compensation Rate Component</b>	<b>Value (\$/kWh)</b>
Base Compensation Rate	\$0.18049
Agriculture Adder	\$0.06000
Off-Taker Adder	\$0.00000
Solar Tracking Adder	\$0.01000
Energy Storage Adder	\$0.04790
Pollinator Adder	\$0.00000
Greenfield Subtractor	\$0.00000
<b>Total Compensation Rate:</b>	<b>\$0.29839</b>

The Qualification of this Generation Unit is subject to all applicable provisions in 225 CMR 14.00, including but not limited to the following. Pursuant to 225 CMR 14.06(5) and (6), the Owner or Operator of the Unit is obligated to notify the Department of any changes in the characteristics of the Unit that could affect its eligibility status, as well as any changes in the Unit’s owner, operator, generation capacity, or contact information, including the Authorized Representative.

The Qualification of this Generation Unit is subject to all applicable provisions in 225 CMR 20.00, including but not limited to the following. Pursuant to 225 CMR 20.06(5) and (6), the Owner or Authorized Agent of a Solar Tariff Generation Unit shall notify the Solar Program Administrator of any changes that may affect the continued eligibility of the Generation Unit as a Solar Tariff Generation Unit, as well as any changes in ownership, capacity, or contact information for the Solar Tariff Generation Unit, no later than five days following the end of the month during which such changes were implemented.

The continued Qualification of this Generation Unit is subject to the Generation Unit meeting all applicable provisions in 225 CMR 14.00, 225 CMR 20.00, and the SMART Tariff as approved by the Department of Public Utilities. The Department may suspend or revoke this Statement of Qualification if the Owner or Operator fails to comply with 225 CMR 14.00, 225 CMR 20.00, or a SMART Tariff approved by the Department of Public Utilities, including the provisions and conditions of this Statement of Qualification.



Date: 6/17/2025\*

Elizabeth Mahony  
Commissioner  
Department of Energy Resources

\*Please note that the date displayed on this document represents the date of original issuance of the Statement of Qualification. Updated versions of a Statement of Qualification that are issued by the Department will retain the original issuance date.



COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF  
ENERGY AND ENVIRONMENTAL AFFAIRS  
**DEPARTMENT OF ENERGY  
RESOURCES**

100 CAMBRIDGE ST., SUITE 1020  
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Facsimile: 617-727-0030

**Charles D. Baker**  
Governor

**Karyn E. Polito**  
Lt. Governor

**Kathleen A. Theoharides**  
Secretary

**Patrick C. Woodcock**  
Commissioner

**Via Electronic Mail**

September 27, 2021

Adam Schumaker  
NextSun Energy  
d/b/a BE RE, LLC  
PO Box 974  
Edwards, CO 81632  
Email: [aschumaker@nextsunenergy.com](mailto:aschumaker@nextsunenergy.com)

Dear Adam Schumaker,

This letter is in response to NextSun Energy's Pre-Determination Form, submitted July 6, 2021, concerning the potential qualification of a proposed 500 kW AC solar photovoltaic installation at Black Cat Bog located at 55 Watercourse Road in Plymouth, MA (Project) as an Agricultural Solar Tariff Generation Unit (ASTGU) under 225 CMR 20.00. The Department of Energy Resources (Department), acting in consultation with the Massachusetts Department of Agricultural Resources (MDAR), has reviewed the request.

Special provisions for ASTGUs are detailed in both 225 CMR 20.06(1)(d) and the *Guideline Regarding the Definition of Agricultural Solar Tariff Generation Units* (Guideline).

Special provisions for ASTGUs are detailed in 225 CMR 20.06(1)(d) as follows:

In order to qualify as an Agricultural Solar Tariff Generation Unit, a Solar Tariff Generation Unit must submit documentation itemized in 225 CMR 20.06(1)(d). All final determinations regarding the eligibility of such facilities will be made by the Department, in consultation with MDAR. An Agricultural Solar Tariff Generation Unit must also

submit satisfactory documentation to the Department as detailed in the Department's *Guideline Regarding the Definition of Agricultural Solar Tariff Generation Units*.

1. the Solar Tariff Generation Unit will not interfere with the continued use of the land beneath the canopy for agricultural purposes;
2. the Solar Tariff Generation Unit is designed to optimize a balance between the generation of electricity and the agricultural productive capacity of the soils beneath;
3. the Solar Tariff Generation Unit is a raised structure allowing for continuous growth of crops underneath the solar photovoltaic modules, with height enough for labor and/or machinery as it relates to tilling, cultivating, soil amendments, harvesting, etc. and grazing animals;
4. crop(s) to be grown to be provided by the farmer or farm agronomist in conjunction with UMass Amherst agricultural extension services, including compatibility with the design of the agricultural solar system for such factors as crop selection, sunlight percentage, etc.;
5. annual reporting to the Department and MDAR of the productivity of the crop(s) and herd, including pounds harvested and/or grazed, herd size growth, success of the crop, potential changes, etc., shall be provided after project implementation and throughout the SMART incentive period; and
6. other system design information, which shall include, but not be limited to:
  - a. dual-use type, e.g., ground mount racking, pole towers, tracking, etc.;
  - b. total gross acres of open farmland to be integrated with the project;
  - c. type of crop(s) to be grown, including grazing crops;
  - d. pounds of crop(s) projected to be grown and harvested, or grazed;
  - e. animals to be grazed with herd size(s); and
  - f. design drawing including mounting system type (fixed, tracking), panel tilt, panel row spacing, individual panel spacing, for pole tower spacing and mounting height, etc.

Additionally, the Guideline sets forth the following System Design Parameters for eligible projects:

1. Panel Height Requirements

- a. For fixed tilt ASTGUs, the minimum height of the lowest panel point shall be eight (8) feet above ground;
- b. For tracking ASTGUs, the minimum height of the panel at its horizontal position shall be 10 feet above ground;

2. Maximum Direct Sunlight Reduction Requirements

All ASTGUs must demonstrate that the maximum sunlight reduction from the panel shading on every square foot of land directly beneath, behind and in the areas adjacent to and within the ASTGU's design shall not be more than 50% of baseline field conditions;

3. Growing Season/Time of Day Considerations

The typical growing season shall be considered to be March through October, with sunlight hour conditions with maximum 50% sunlight reduction to be between 10AM and 5PM for March and October, and from 9AM to 6PM from April through September;

#### 4. Maximum Size

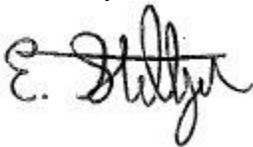
The maximum AC rated capacity of an ASTGU shall be two MW in the first two Capacity Blocks of each Distribution Company's service territory. The Department, in consultation with MDAR, will make an evaluation as to whether or not this provision shall be adjusted in subsequent Capacity Blocks.

Acting in accordance with 225 CMR 20.00 and applicable guidelines, the Department, in consultation with MDAR, hereby determines that the Project, as proposed, has demonstrated that it likely satisfies all criteria set forth in 225 CMR 20.00 to be considered an ASTGU.

Please be advised that this pre-determination of ASTGU eligibility letter is not a final Department decision, is not binding on the Department or MDAR, and does not give rise to any appeal right under M.G.L. c. 30A, or any other law. The Department, in consultation with MDAR, will make a final determination on the eligibility of the Project's status as an ASTGU at the time it issues a Statement of Qualification under 225 CMR 20.06. Such final determination may be different from the pre-determination contained in this letter if information provided by you in connection with your Pre-Determination Form is materially inaccurate or incomplete.

If you have any questions regarding this pre-determination of eligibility, please contact Grace Fletcher at [grace.fletcher@mass.gov](mailto:grace.fletcher@mass.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "E. Steltzer". The signature is written in a cursive style with a horizontal line through the middle.

Eric Steltzer  
Director, Renewable and Alternative Energy Development

cc: MDAR

**ALERT! Winter Injury Appearing on Beds This Spring**

By Katie Ghantous with input from Peter Jeranyama

It has come to our attention that there are widespread reports of winter injury showing up on MA cranberry bogs this spring as both winterkill (desiccated uprights) and injury to cranberry buds on non-desiccated uprights. Reports range from mild to severe and are being seen in all areas including the Cape. In some areas the winterkill injury is extensive, and it is increasingly appearing that the MA crop yield will be impacted. Some growers have been estimating that they will be down by as much as 30% this year.

We experienced a very cold period this winter. While it provided a rare opportunity for some ice sanding, it also created a potentially injurious time for the cranberry vines. The evening temperatures averaged 18.6°F in January and 20.2°F in February. January had 5 nights with temperatures below 9 degrees and February 11 and 12 had low night temperatures of 2 °F.

To make matters more complicated, there were freeze and thaw cycles. The cold snaps were followed by some days of thawing and then followed by MORE cold and windy days. Some beds that were flooded for the first cold period lost some ice/water and vines were then exposed for the second cold period. We are hearing that many growers feel that the injury happened during the second cold period. There are some beds that cannot hold water, and it is expected that those sites could have incurred more extensive injury (most likely from both cold periods).

During the Crop Summit held at the Cranberry Station in December 2024, there was a lot of discussion about the drought conditions during harvest and whether that would impact the vines for next year. One grower stated that in his many years of experience, vines can tolerate one major stress per



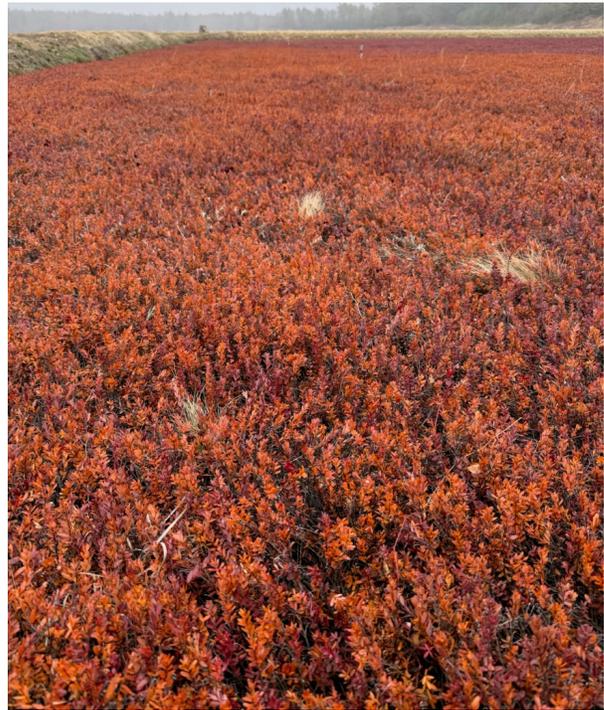
*Desiccated uprights, showing damaged leaves and buds. Photo courtesy of Krystal DeMoranville.*

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season, but a second stress causes major problems. This week, more than one grower has mentioned to me that they think the dry fall may have played into the vines being more prone to winter injury.

### WHAT IS WINTERKILL?

Cranberry vines may be injured or killed by severe winter weather. The most common injury, referred to as “winterkill”, is classified as a physiological drought. This can occur when the root zone is frozen. Unlike deciduous woody plants, cranberry plants hold onto their leaves all year long which makes them vulnerable to winterkill. Water in leaf and bud tissues is lost from the vines due to wind and evaporation and it cannot be replaced because the water in the soil is frozen and unavailable to be taken up by the cranberry roots. According to the 2008 Cranberry Production Guide, in addition to direct damage to buds the “desiccation may result in leaf loss in the spring. Since cranberries accumulate nonstructural carbohydrates (the fuel for metabolism and growth) in the spring, the loss of leaf tissue may have a significant impact on subsequent production of new growth and fruit.”



*A cranberry bed that was unable to be flooded showing extensive and severe injury.*

Winter floods are used to protect the vines when winterkill conditions are predicted (root zone is frozen to a depth of 4 inches, air temperature is below freezing, and strong winds (10 mph or greater) are expected to occur). To be optimally effective, the flood should be deep enough to cover *all* vine tips. In many cases, this is not possible if the bed is out of grade, has tufty spots, or other circumstances where some vines are not fully protected by the flood. Inherent varietal differences may influence the severity of the winter injury.

In most cases where winterkill symptoms show up, the uprights are affected but the plant itself is still alive and will recover. Most of the plant was protected, and the desiccation has not been severe enough to kill down to the roots.

### WHAT DO I DO IF I HAVE SYMPTOMS ON MY BOG?

After reaching out to colleagues in other regions that experience winterkill conditions like New Jersey and Quebec, it turns out that there are no formal recommendations for how to deal with winterkill anywhere! Most of the research focuses on preventing winterkill, and there is not much research focused on how to manage beds with winterkill injury.

The Chart Book states that for winter injury:

- **Start fertilizer early.** If leaf drop occurs after withdrawal of winter flood, early spring fertilizer applications will aid in recovery by encouraging rapid, early production of new leaves. Do not skip spring fertilizer. Note that the Chart Book recommendation is that you can apply up to 20% of the *total N* between roughneck and hook. If you do not usually apply fertilizer that early but have winterkill you may want to consider incorporating that timing into your program this year.

- **SulPoMag.** SulPoMag (or similar material) at 100-200 lb/A may also aid recovery. If your injury is severe you may want to select the higher end of the rate range.

We have had growers question whether or not to alter their fertilizer programs (either increase or decrease N amounts, add in other fertilizers like Sul-po-mag, etc.) to compensate for injury and help vines recover. It is important to consider adjusting the *total amount* of Nitrogen you plan to apply this year. Just as you would add more N if you expect a large crop, if you expect your crop to be smaller than usual you should think about adjusting the amount of N down so as not to encourage excessive vegetative growth.

### WINTER INJURY TO CRANBERRY BUDS ON NON-DESICCATED UPRIGHTS.

On State Bog, we have been seeing some uprights (not obviously showing signs of winterkill) present with buds that are damaged. Cranberry buds that will grow into flowering uprights contain multiple floral initials. Not every flower will result in a fruit. If some of those floral initials are damaged from winter or spring frost, that upright can still go on to successfully bear fruit. Some injury does not necessarily translate into a loss in yield. Peter's research shows that a cranberry bud typically has four to six floral initials and damage to two floral initials means the remaining two to four initials will produce flowers and result in fruit production. So, moving into the frost season with *some* preexisting winter injury to buds is not a doom scenario. If the winter damage to buds was more extensive than one or two floral initials per bud, yield could be impacted.

To check a bud for injury, create a cross section to examine it. Remove the leaves around the bud, lay the upright on a flat surface, and cut through the bud half-way between the top of the bud and the point where the bud joins the stem. Use a sharp, thin blade - a razor blade works well. See the [Frost Protection Guide](#) for more information or reach out to us at the Cranberry Station for assistance!



*Cranberry buds sliced horizontally. The picture on the left shows damage to one floral initial, leaving the bud with potential to set a normal amount of fruit despite the loss of a flower. The picture in the middle shows injury to all floral initials, likely resulting in no flowers or fruit. The vegetative portion appears unaffected. The picture on the right showing extensive damage to the entire bud. Photos courtesy of Krystal DeMoranville.*