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: Thomas Roberts ☒ Farm Owner ☒ Farm Operator
Farm Name: Burgundy Brook Farm
Legal Structure: ☐ Sole Proprietor ☐ LLC ☐ Corporation
☐ Partnership ☐ Other _____
Mailing Address: P.O. 1312 Bondsville, MA 01009
Street Address (if different): 400 Franklin St. Belchertown, MA 01007
Contact Phone: (413)374-9238 Contact E-mail: burgundybrook2@gmail.com
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: 11.9 acres

Gross Annual Revenue for ASTGU Farm Production: Total $ 2600.00

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: BWC Swift River, LLC
Solar System Company Address: 116 Huntington Ave, Suite 601, Boston, MA 02116
Solar Company Contact Person/email/tel#: Jesse Robertson-DuBois, BlueWave Energy, jrobertson@bluewave.energy (agvops@bluewave.energy), 413-450-1950

ASTGU Project Start-Up/History Information:

Date ASTGU Approved by DOER: Pre-Determination Application Approval: 13 November 2019

Date Solar Portion of ASTGU Project Commenced Construction: Notice to Proceed: 17 Feb 2023; Construction Start (Mobilization): 23 February 2023

Date Solar Portion of ASTGU Project was Completed & Operational: Permission to Operate: 29 Dec 2023; Incentive Start Date: 27 March, 2024; Final Completion: TBD

Date Original Agricultural Portion of the ASTGU Project Commenced: 26 June 2024 (began grazing cattle in arrays)

Date Original Agricultural ASTGU Portion of Project Harvested/Sowed Products: 26 June 2024 (began grazing cattle in arrays)

How many complete years, that is both solar and agricultural production, has the ASTGU been in operation? None

SOLAR ARRAY DESIGN – PLEASE PROVIDE AS-BUIILT SYSTEM INFORMATION

Please provide the following information regarding the solar array design:

Nameplate capacity AC (in MW): 1.986 MW *(Note: 1 MW=1000 kW)*
Expected annual generation AC (MWh): 3,299.968 MWh *(Note: 1 MWh=1000 kWh)*
Acreage of farmland over which array is to be installed: 11.9 acres
System type: ☐ Fixed ☒ Tracking ☐ Other_____
Height of lowest panel edge (in feet): 7'
Height of lowest elevated horizontal mounting (in feet): 10'

Type of mounting (mono poles, racking, etc.): Single -axis tracker (Array Technologies, Inc)

Description of materials and process to be used for ground penetration: Driven I-beam pilings with polyethylene frost sleeve

Number of panels, capacity per panel, and panel spacing: 3,504 modules at 580W capacity, mounted in rows 26'-0" on center (18'-1" edge-to-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

AGRICULUTRAL 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:

> With this being our first year farming under the two arrays, we chose to only graze cattle. Having the 2 fenced arrays has improved our ability to easily implement rotational grazing for our cattle herd. We also wanted to see how the pastures, that were gently disturbed during construction, would grow back to determine if new seeding would be necessary and also what kind of seed would be best.

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

> Yes. Given that this is a new venture for us as farmers, we planned to graze cattle in the first year and see how the hay fields bounced back. We also had the opportunity to operate some of our tractors and mowing equipment under and around the array to

familiarize ourselves and get comfortable before operating our hay equipment in the array.

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

We did not harvest any hay in the first year.

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

. We anticipated the fields to have several areas that would need to be reseeded and improved after construction but we were pleasantly surprised to see them return close to their previous condition. There were only small areas, mainly just around the posts, that did not fill back in but those areas cannot be reached with our hay equipment anyway. It also appears that the tracking system allows for some partial shading to areas which provides some relief from the sun on very hot days which prevents burning especially when there was draught in the early part of the growing season.

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

We may interseed the fields in early spring with a timothy-orchard grass blend using our Esch No Till Drill. This method of seeding will not disturb any current growth and is an excellent way to increase hay yields and improve overall hay production.

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?

In years 2 and 3, we plan on harvesting first and second cut hay. Once we have finished harvesting hay, we will use both arrays for rotational grazing. This will allow us to harvest the best hay and then the cows can graze any areas that we are unable to reach with our hay equipment. This would be our plan for the next 5 years as well. Weather can always be a factor when harvesting hay. For example, if we have a year with excess rain, it could be challenging to harvest dry hay. In that event, we may need to switch our cutting and grazing cycles. First cuttings usually take place in late May to early June and 2nd cuttings generally start around mid-late July.

Table A: Crop Production – Current Season					
Crop	**Area planted** ***(Row length and width or acreage, as appropriate)***	**Planting date(s)** ***(approximate)***	**Harvest date(s)** ***(approximate)***	**Expected productivity, total pounds harvested with dual use**	**Actual productivity, pounds, with dual use**
Hay (West array)	6.9 acres		N/A - grazed		
Hay (East array)	5.0 acres		N/A - grazed		

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."*

N/A – grazed

Crop:_____

Planting Plan:_____
_____
_____
_____

Soil Amendment Plan:_____
_____
_____
_____

Cultivation Plan: _____
_____
_____
_____

Irrigation Plan: _____
_____
_____
_____

Pesticide/Herbicide Plan: _____
_____
_____
_____

Harvest Plan:_____
_____
_____
_____

Table B: Grazing Production – Current Season							
Type(s) of animal grazed	**Area grazed *(acreage)***	**Grazing pressure # *animals per acre***	**Purpose (e.g. meat, dairy, eggs)**	**Grazing period(s)**	**Harvest date(s) *if applicable***	**Expected productivity with solar array**	**Actual productivity with solar array**
Cattle	11.9 Acres	5	Meat	6/24-6/26 8/21-8/25 10/23-10/25			

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:

Beef cattle

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

We did not plant seed or spread fertilizer in the first year. Besides grazing cattle, we brush-hogged both arrays to cut back any weeds or grasses that the cows did not graze. We use our 6' County Line pull behind brush-hog along with our John Deere 5425 Tractor. Brush-hogging was done on 7/10, 8/27 and 10/26. This helps to keep weeds under control and pastures well maintained between and after grazing.

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.

Prior to moving the cows into the array, we put up panels to make it easier to move them from one fenced in area to the fenced in solar array. In addition, we built a pitcher pump system for water. We used a mini excavator to assist with digging.

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.

Before we could allow the cows to graze under the arrays, we put above ground electric fence around any areas we were concerned that the cows could possibly rub on or cause damage to.

Table A: Crop Production – Next Season					
Crop	**Area planted** ***(Row length and width or acreage, as appropriate)***	**Planting date(s)** ***(approximate)***	**Harvest date(s)** ***(approximate)***	**Expected productivity, total pounds harvested without dual use**	**Expected productivity, total pounds, with dual use**
Hay (West array)	6.9 Acres	1st week of April is applicable	1st Cutting: June 15th 2nd Cutting: July 30th	Approx 25 tons	Approx 23 tons
Hay (East array)	5 Acres	1st week of April is applicable	1st Cutting: June 15th 2nd Cutting: July 30th		

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: Hay

Planting Plan:

We are unsure if additional planting will be needed. Last years' grass returned plentifully after construction. If we decide to plant, we will use our Esch 5610 No Till Drill to interseed over the current hay crops in early April.

Soil Amendment Plan:

We will fertilize during the month of April. We usually rent a fertilizer spreader from Nutrien Ag Solutions and spread them ourselves using our John Deer 5425 Tractor. If the spreader we rent is too tall to fit under the drive bar, we have a cone spreader that connects to a 3-point hitch that we can easily use in the arrays. Last year we spread fertilizer on the fields just outside of the array which consisted of 16.8 N-0P-30K mix. We have had soil testing done in previous years in the area where the array is. Tests showed high to adequate levels of phosphorus. For that reason we do not include phosphorus in the fertilizer mix. We plan to use a similar fertilizer mix next season.

Cultivation Plan:

N/A

Irrigation Plan:

We do not plan on implementing irrigation as we have not had to in previous years. We also believe the partial shade that changes with the tracker will provide some relief from direct sun and reduce any burning.

Pesticide/Herbicide Plan:

We do not treat our hay crops with herbicide or pesticide.

Harvest Plan:

We plan to harvest 1st cut around June 15th and 2nd cut around July 30th. Hay will be cut using our 10' John Deere 630 side pull mower conditioner. We will use a 24' Esch Tedder, followed by either our Kuhn GA6002 Rake which can be adjusted between from 11'6" to 19' windrows or we will use a single John Deere side delivery, ground driven 9' rake. We are unsure which one will be more easily maneuvered so we will have to determine that when we actually rake hay next season. We will use a Kuhn FB 2130 Fixed Chamber Baler with HarvestTech preservative applicator. Each of these will be powered by a John Deere 5425 Tractor.

Table B: Grazing Production – Next Season							
Type(s) of animal grazed	**Area grazed *(acreage)***	**Grazing pressure # *animals per acre***	**Purpose (e.g. meat, dairy, eggs)**	**Grazing period(s)**	**Harvest date(s) *if applicable***	**Expected productivity without solar array**	**Expected productivity with solar array**
Cattle	6.9 Acres (West Array)	4-5 head	Meat	1st Week of August 1st week of September	N/A	N/A	N/A
Cattle	5 Acres (East Array)	6 head	Meat	3rd week of August 3rd week of September	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:

Cattle

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

If we decide seeding is necessary, it would be done the first week of April using our Esch No Till Drill to interseed. We would then spread fertilizer around the last week of April. Please see soil amendment plan above for details on equipment that will be used. We do not have an irrigation or pesticide plan. Grazing will take place after the first 2 cuttings have been completed. After each grazing period we will use our 6' pull behind brush hog with our John Deere 5424 tractor to clean up any weeds or areas that were not eaten down during grazing. This will allow us to keep weeds under control and allow, maintain forage quality and reduce grazing patterns.

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.

Cattle will be moved into the array after hay has been harvested. We use a pitcher pump well to supply water.

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.

We plan on moving the above ground electric fence to an underground system in the upcoming season.

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.

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.

James R. Haley

Signature of Landowner

12/30/24

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.

James R. Haley

Signature of Farm Operator

12/30/24

Date

James R. Haley

Signature of Landowner

12/30/24

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.

James Haley

James Haley (Jan 9, 2025 18:28 EST)

Authorized Signatory

Jan 9, 2025

Date