

Commonwealth of Massachusetts  
Executive Office of Energy and Environmental Affairs  
DEPARTMENT OF ENERGY RESOURCES  
DEPARTMENT OF AGRICULTURAL RESOURCES

SOLAR MASSACHUSETTS RENEWABLE TARGET PROGRAM  
(225 CMR 20.00)

GUIDELINE

Guideline Regarding the Definition of Agricultural Solar Tariff Generation Units

Effective Date: April 26, 2018

Revised: TBD

PURPOSE

~~This document provides guidance regarding the manner in which a solar photovoltaic facility may qualify as an Agricultural Solar Tariff Generation Unit (“ASTGU”) under the Department of Energy Resource’s (Department) Solar Massachusetts Renewable Target (SMART) Program.~~

BACKGROUND

~~On April 11, 2016, Governor Baker signed Chapter 75 of the Acts of 2016 into law. The Act directs the Department to create a long-term sustainable solar incentive program to promote cost-effective solar in the Commonwealth. The Act further directed the Department to “...differentiate incentive levels to support diverse installation types and sizes that provide unique benefits...” In developing the SMART Program, the Department established six types of location-based Compensation Rate Adders, one of which is provided for ASTGUs.~~

~~Given the small number of solar facilities that meet the objectives and criteria outlined in the definition of ASTGU in the Commonwealth today, but the desire to see the installation of such systems that can provide the dual-use benefits, the Department,~~

1) Purpose and Background

~~The Department of Energy Resources (Department), in consultation with the Massachusetts Department of Agricultural Resources (MDAR), has developed this Guideline to clarify additional eligibility criteria not prescribed in regulation document to provide guidance regarding the manner in which a Solar Tariff Generation Unit (STGU) may qualify as an Agricultural Solar Tariff Generation Unit (ASTGU) under the Department’s Solar Massachusetts Renewable Target (SMART) Program. The goal of the SMART Program is to reach 80 MW AC capacity of ASTGU systems. Once the goal of 80 MW AC capacity is reached, the Department plans to review the ASTGU program once the goal of 80 MW AC capacity is reached and may adjust the ASTGU requirements following the review if necessary.~~

Adopting ~~these additional~~ provisions via ~~this~~ Guideline, ~~as~~ was requested by many commenters in the initial stakeholder process ~~that led to the promulgation~~ of the ~~regulation~~, SMART Regulation. Such adoption, in consultation with MDAR, will provide the necessary flexibility for the Department, ~~in consultation with MDAR~~, to make modifications to key eligibility criteria as lessons are learned in constructing and operating ~~ASTGUs~~an ~~ASTGU~~.

~~Any modifications to this Guideline will only be made following an opportunity for public comment that shall remain open for at least two weeks.~~ All capitalized terms in this Guideline are defined in 225 CMR 20.02.

## 4)2) 225 CMR 20.00 Regulatory Provisions Specific to ASTGUs

Under the SMART program, ~~Solar Tariff Generation Units~~STGUs are eligible to qualify as an ASTGU, which is defined under 225 CMR 20.02 as follows:

Agricultural Solar Tariff Generation Unit. A Solar Tariff Generation Unit located on Land in Agricultural Use or ~~Prime~~Important Agricultural Farmland that allows the continued use of the land for agriculture.

Additionally, 225 CMR 20.06(1)(d) contains special provisions pertaining ~~specifically~~ to the eligibility of ASTGUs:

(d) Special Provisions for Agricultural Solar Tariff Generation Units. 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) ~~below.~~. All final determinations regarding the eligibility of such facilities will be made by the Department, in consultation with MDAR. ~~A~~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 towers tower spacing and mounting height, *etc.*

### 2)3) Additional Provisions for ASTGUs

Provided ~~a Solar Tariff Generation Unit~~ an STGU meets all program eligibility criteria in 225 CMR 20.00, ~~in particular the provisions relating to ASTGUs prescribed in 225 CMR 20.02 and 20.06(1)(d), a Solar Tariff Generation Unit~~ an ASTGU must also satisfy the following provisions to qualify ~~as an ASTGU~~. Note that these provisions take into account the entire useful life of the solar photovoltaic array with consideration for the variety of possible agricultural activities and crops that could take place on ~~farm land~~ farmland over that timeframe. In other words, they do not simply consider present use.

The system design parameters defined ~~in Section A~~ below will allow for the variety and flexibility of potential farming operations ~~at any given farm~~ throughout the life of the solar photovoltaic array. These parameters ~~are stated as minimums, giving provide~~ farms the flexibility to ~~determine~~ adjust agricultural activities over time due to a variety of reasons, including different crops and finalize farming operations. machinery requirements.

#### a) Shading Analysis Tool

Applicants ~~complying with~~ must use the ~~additional provisions in Section A below will be reviewed in an expedited process.~~ shading analysis tool (SMART Tool) developed by the Department to apply as an ASTGU in the SMART Program. The SMART Tool:

~~DOER intends to develop a standard design tool (SMART Tool) to be mandated for use by all Agricultural Solar Generation Tariff Unit applicants, and to be used by developers and farmers alike to demonstrate meeting the SMART regulations and Guidelines. The SMART Tool will be designed to:~~

~~a) assist~~ i) assists in the design of an ~~Agricultural Solar Generation Tariff Unit~~ ASTGU by understanding the shading impact on all the land beneath, behind, and throughout the farmed area, of various dual-use array system designs and layouts;

~~b) provide~~ ii) provides a farm plan template to be used by the landowner to propose their active agricultural production plan consistent with the array configuration and shading profile ~~and compliant with the Guideline requirements;~~ and

~~e) provide~~ iii) provides an annual reporting form template ~~compliant with the Guideline requirements.~~

#### a) b) A. System Design Parameters:

- i. Panel Height Requirements:

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

ii. 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; as calculated by the SMART Tool.

iii. Compatible Sunlight Needs:

Per SMART Regulations 225 CMR 20.06(1)(d)(4), applicant shall provide documentation that the project's proposed solar design's sunlight amount and sunlight reduction is compatible with the proposed agricultural crops and productivity over the project's lifetime.

iii.iv. 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.

iv.v. Maximum ~~Size~~ASTGU Rated Capacity:

The maximum AC rated capacity of an ASTGU shall be ~~two~~five (5) 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~~maximum DC rating shall be adjusted in subsequent Capacity Blocks. 2:1 DC to AC ratio and shall not exceed 7.5 MW DC.

c) ~~B. Waiver~~Exception from ~~Additional Provisions~~System Design Parameters

~~DOER~~The Department recognizes the variety and, in some cases, the uniqueness of farming operations where some of the ~~Additional Provisions for an~~ASTGU system design parameters may not be required to achieve the objectives of the ASTGU. ~~To address this issue, a landowner~~these such specific cases, an applicant may request that ~~DOER issue a waiver~~the Department, in consultation with MDAR, issue an exception from any of the ~~Additional Provisions~~system design parameters, for an ASTGU ~~that is not contrary to the law or the intent of the regulations.~~in Section 3b) above. All ~~waiver~~exception requests should be submitted to DOER.SMART@state.ma.us.

DOER.SMART@mass.gov. In order to no case will an exception be approved by the Department if it is contrary to the intent of the regulations.

An exception request ~~a waiver, the applicant must provide the Department~~ shall include with the following:

i. An Alternative Plan Development that:

Develop a plan that:

1. ~~a. describes details~~ how the applicant will integrate the ASTGU into their farming operation;
2. ~~b. demonstrates that a waiver~~ the Alternative Plan does not result in a diminishment in the agricultural production capacity of the land; and
3. ~~c. demonstrates that the primary use of the land is for agricultural or horticultural production, as defined~~ under by M.G.L. Chapter c. 61A.

ii. Justification and Substantiation

An applicant must provide justification as to why an the alternative ASTGU design is necessary for the proposed agricultural operations on the relevant parcel of land.

iii. Additional Documentation

An applicant must provide documentation for each specific aspect of the system design parameters ~~from Section A of this Guidelines set forth below~~ for which the ASTGU ~~requires a waiver as follows~~ is requesting an exception:

1. Panel Height Requirements:

Provide documentation demonstrating how the proposed design will allow for the variety and flexibility of a variety of potential farming operations at the farm throughout the ~~term of the entire~~ SMART Tariff-tariff term.

1.2. Maximum Direct Sunlight Reduction Requirements:

- a. ~~Demonstrated~~ demonstrate how the proposed dual-use design will provide equal or greater total agricultural yields than if both the agricultural crop and ~~the~~ solar array were grown and installed separately, utilizing the same amount of total land area for the comparison;
- b. ~~Demonstrated~~ demonstrate how each square foot of land will be used for agriculture production; and

- c. ~~Demonstrate~~demonstrate how the design will be able to accommodate a variety of potential agricultural products throughout the ~~twenty year term of the~~ SMART ~~Tariff~~tariff term.

### 3. Growing Season/Time of Day Considerations:

Provide documentation on how the time of season and time of day data in ~~Section A~~the system design parameters is not relevant to the farming practice and operation, currently, and for the term of the SMART Tariff.

### 4. Other:

For all other requirements for which ~~a waiver~~an exception is being sought, please describe the ~~waiver~~exception(s) requested, why the proposed alternatives require ~~a waiver~~an exception, and how these alternatives will meet the ~~intention~~intent of the ASTGU ~~regulations-requirements in the SMART Regulation and Guideline~~.

### 4) Eligible Farmland

- i. All eligible farmland shall be measured as all land that is owned or leased by a farmer that is at a minimum currently enrolled in M.G.L. ch. 61A or has been enrolled in Chapter 61A in the past five years OR is classified as Important Agricultural Farmland, e.g., prime farmland, unique farmland, or additional land of statewide importance.
- ii. All land ~~intending~~intended to be newly created farmland shall be deemed eligible farmland if it has ~~established an~~been in active agricultural ~~operation~~use and managed as ~~defined a commercial enterprise by M.G.L. 61A,~~ the farm applicant for not less than three consecutive years immediately prior to the date when an application is submitted to the SMART program.

### 5) Agricultural Plan

- i. Pursuant to 225 CMR 20.06(1)(d)(4) and (6), applicants must complete an agriculture plan detailing the crop(s) to be grown on the project site. The template for the agricultural plan is included in the Pre-Determination Application posted on the DOER website.
- ii. For ASTGUs on Important Agricultural Farmland, applicants must demonstrate a history of production of their proposed agricultural commodity on the proposed ASTGU site for not less than three years immediately preceding the date of application to the SMART program.

## 6) Annual Report

Each year, an Annual Report must be provided to the Department and MDAR pursuant to 225 CMR 20.06(1)(d)(5) that demonstrates it continues to engage in commercial agricultural to retain and use the land primarily and directly for agricultural purposes pursuant to M.G.L. c. 61A §§1 and 2.

The annual report is due to the Department and MDAR by December 31<sup>st</sup> of each calendar year for the life of the ASTGU. The annual report should be emailed to DOER.SMART@mass.gov. The Annual Report template will be posted on the DOER website. All Annual Reports will be published on the DOER website.

### i. Waiver for Decreased Yield

Due to unforeseen circumstances, such as weather events, pests, or change in crops, the 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 by the Department in consultation with MDAR for ~~any~~the decreased yields. The applicant must demonstrate to the satisfaction of the Department that a waiver is warranted for good cause. Waiver requests must be submitted by November 1<sup>st</sup> of the applicable calendar year and sent to DOER.SMART@mass.gov.

If the applicant's waiver is approved by the Department, the applicant may not apply for an additional waiver in the subsequent year.

### 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.