



February 23, 2018

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Dear Mr. Judge:

The manner in which DOER has solicited stakeholder input, hired outside expertise and rolled out the program design of the SMART program is a best in class example of good government. It is the actions of the legislature in the Green Communities Act, Chapter 75 of the Acts of 2016 and the consistency in which DOER has handled the transition between solar programs that, despite the absence of a functioning SMART program, has created a confidence in the market that at the end of the day Massachusetts will do the right thing to create a long-term sustainable solar program in the Commonwealth. If DOER gets the pricing and program design right, the SMART program will be an enviable program that other states should consider adopting.

While DOER is in the process of creating a more bankable solar program, the above mention of appreciation does not mean the program is perfect by any means. The 1600 MW program design like any growth control instrument is creating its own level of unnecessary complexity as opposed to a long-term program through 2030. The declining block mechanisms based upon past rapidly declining solar materials and labor assimilation costs, are running into national tariff programs, rising inflation and a strong economy. Combine rising solar cost with skyrocketing interconnection cost and the usual high land entitlement cost with the declining block mechanisms and it is not a stretch to envision the on again off again whipsaw of solar development availability experienced during the past SREC and net metering programs. This comment letter will attempt to mitigate the shortcomings of the SMART programs for larger ground mount systems.

**225 CMR 20.00 Regulatory Provisions Specific to Agricultural Solar Tariff Generation Units**

Despite the best of intentions, the Agricultural Solar Tariff provisions appear to have been designed to preserve rather than create more farm land. The SMART program and its Guidelines should specifically encourage the creation of more farmland and all of the economic and community benefits that attribute to a locally grown food industry as defined in Chapter 61A sec. 1 & 2.

When new farmland is **created or returned to agricultural use** this would mean that the SMART guidelines would allow for the development of solar systems 5MW per parcel in size with no subtractors and the Agricultural Solar Tariff would ensure retention in agricultural use for 20-years.

Using the capital investment stack of installing solar PV plus the Agricultural Solar Tariff adder would accomplish the following:

- 1) The existing farm industry needs more farm related income to make their operations viable. Differing business models will be developed but the existing farming, farm supply, landscaping, site contractors, equipment suppliers will be the first to be called upon to create, develop, plant, harvest and maintain these dual use businesses.
- 2) SMART creation of farmland will combat the break up of family farms due to non-farming family estate transition issues.
- 3) SMART Agricultural tariff provisions will ensure that solar owners develop business plans and relationships to maintain the land in bone fide agricultural use for twenty-years. Not only will SMART create a renewables industry, it will broaden and strengthen the agricultural sector. As an example, every 100 MW worth of solar projects at an average of 40 acres per 5MW solar project could add over 800 acres of farmland into the Massachusetts farm inventory.
- 4) SMART, while innovative, has detractors and first among them is the cost of interconnection. Larger projects combined with some agricultural revenue will help mitigate some of those cost.
- 5) SMART creation of farmland, particularly as projects are aggregated to common solar project owners, will drive innovation particularly in the organic farming, which requires soils to have no prohibited substances for three years. Other standards call for distances to be within a 300-mile sector radius of the site, which for Massachusetts would also include the New York City and eastern New York state markets.
- 6) Co-locating solar renewable energy with greenhouses could be not only a competitive advantage but also a grid systems benefit pairing high-energy users in the immediate proximity to renewable generation.
- 7) The SMART tariff will have no inflation or revenue increases for 20-years. This means that the systems degradation rate of 0.005% plus a 1.5% inflation rate results in a 2% per year degradation in purchasing power per year for systems maintenance and repair. Dual-use of this land will assist in the continued viability of the land dedicated to solar generation. In 20-years, land dedicated to solar will be part of our grid infrastructure and will need to have continued economic viability and having project scale size and a second source of revenue is a part of such continued economic success.

### **225 CMR 20.02: Definitions**

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

### **Recommendation:**

The Guidelines should accommodate the creation or the return of land to agricultural use or the definition in 225 CMR 20:02 will need to be changed.

The Agricultural and Land Use Guidelines should recognize land returned to agricultural use as valuable land of statewide importance and therefore should recognize NRCS, USDA 657.5 Identification Of Important Farmlands (2) (c ) and (d). Prime farmlands as defined within the federal definition are very difficult to achieve, inhibits innovation and adds a layer of complexity whose definition is beyond state control to define whereas 657.5 (2) ( c ) & (d) are determined by State agencies. NRCS, USDA 657.5 (2) (c ) and (d) (below)

(2) Specific characteristics of unique farmland. (i) Is used for a specific high value food or fiber crop; (ii) Has a moisture supply that is adequate for the specific crop; the supply is from stored moisture, precipitation, or a developed-irrigation system; (iii) Combines favorable factors of soil quality, growing season, temperature, humidity, air drainage, elevation, aspect, or other conditions, such a nearness to market, that favor the growth of a specific food or fiber crop.

(c) Additional farmland of statewide importance. This is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage, and oil seed crops. Criteria for defining and delineating this land are to be determined by the appropriate State agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable. In some States, additional farmlands of statewide importance may include tracts of land that have been designated for agriculture by State law.

(d) Additional farmland of local importance. In some local areas there is concern for certain additional farmlands for the production of food, feed, fiber, forage, and oilseed crops, even though these lands are not identified as having national or statewide importance.

Where appropriate, these lands are to be identified by the local agency or agencies concerned. In places, additional farmlands of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Continued restriction on the use of Prime Agricultural land in both the Agricultural and Land Use Guidelines is short sighted, inhibits innovation and will not create the kind of impact the 1600 MW SMART program and its successor is capable of accomplishing.

### **Existing Guidelines:**

*Guidelines No. 3: all Agricultural Solar Tariff Generation Units must demonstrate that the maximum sunlight reduction from the panels on every square foot of land directly beneath, behind and in the areas adjacent to and within the Agricultural Solar Tariff Generation Unit's design shall not be more than 50% of baseline field conditions;*

*Guideline No 4: fixed tilt designs shall include a minimum four feet distance between each panel(s) in order to avoid full shade beneath and behind each row of panels; single- and double-axis tracking systems must demonstrate the 50% sunlight reduction maximum can be achieved without the minimum four feet distance;*

### **Recommended: Recognize Differing Approaches**

The Guidelines should recognize differing approaches to solar panel and agricultural land use design. The drawings completed by Solar Design Associates indicate differing designs that meet or exceed the requirements stipulated by SMART. Please find attached comparison between SMART 4' Program Agricultural Racking, Industry Standard Ground Mount PV Racking Strategy and our recommended Improved Agricultural Racking Design.

The “Improved Agricultural Racking Design” as indicated by the SDA drawings holds the row spacing farther apart allowing more un-shaded areas for agricultural use and facilitate the use of machinery for the harvesting of crops. The expanded row spacing will also allow for the installation of lower profile greenhouses as the industry concept matures.

The current SMART recommendation of holding the individual panels four (4’) feet apart is fine in theory for certain discrete applications but is in general not economically viable and limits innovation.

The current guidelines make no accommodation for shade tolerant crops, substitution for certain requirements for the introduction of bees, allowances for greenhouses and other innovative uses and business plans not yet explored.

### **Agricultural Scale:**

According to MDAR, the average farm produces \$63,470 on 68 acres of land. Out of 7,755 farms consisting of 523,000 acres, 6,500 farms earn less than \$50,000 per year. To be viable and drive innovation, the SMART program should encourage the re-creation of agricultural land and to give it scale to compete and deliver products to market. Two (2MW) megawatts of solar on ten (10) acres of land is not a business but a hobby. SMART agricultural development should not be competing with the retail U-Pick farms who provide a day-trip entertainment kind of experience. SMART agricultural dual use solar projects should be commercial in nature and as such need scale to compete. Why would a developer build a 5MW solar project (30-40 acres) and only install 2MW (10 acres) worth of dual use agricultural solar racking? It would be a waste of resources and opportunity.

Out of the 5,284,480 acres total acres comprising the Commonwealth of Massachusetts, currently 523,517 acres are in farmlands or 10% of the land area. In 1920, 25% to 37.5% of the land in Massachusetts<sup>1</sup> was in agricultural use or 1.3 million to 1.9 million acres giving rise to the observation that all of the stonewalls that we see in the woods and forest were once farms.

Dual-use SMART Agricultural Solar should be allowed to re-create farmland with no subtractors at the 5MWac per lot project size and be expected to meet the MDAR expectations of a viable agricultural plot of land.

Typical of farm customers we speak and contract with, there are a family of four siblings in the SEMA load zone who have a farm where only one member still raises cattle for sale. The other family members respect his wishes to remain farming the land but want to extract value off the land without selling the land and look to a solar land lease to accomplish those goals. When the farming member was inquired if he would like to take advantage of participating in the SMART Agricultural Solar program, he jumped at the

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<sup>1</sup> USDA.mannlib.cornell.edu Chapter 1 Farms and Farm Property, Page 26

chance saying he was not restricted by barn size or water, but feed stock to (grazing & hay) to be able to afford to raise more animals. The family has 20+ acres cleared for pasturelands and we would need to clear another 25-30 acres and return that land to pastureland. The project would require the SMART program to allow the re-creation of farmland to 5MW with no subtractors under Land Use Category 1.

Our firm has another farm family with four siblings in NEMA Boston, that is breaking up a 400-acre farm, putting retirement housing on one 200 acre piece and 5 MW of solar on treed land not being used for farming on the remaining 200 acre agricultural piece. This project should have the ability to return this land not used for farming into agricultural use. Otherwise the land will be sold for house lots.

**Change Land Use Designation:** Land returned to agricultural use should be viewed as a Category 1 resource.

For financing purposes, DOER and MDAR will need to recognize business plans because the first year may not yield a harvestable crop depending the time of year in which the final commercial date of operation is achieved.

In addition, it is not clear how MDAR would recognize long developing crops like tree farms, vineyards, and even perennial crops like asparagus which takes 3-5 years to mature.

**Additional Provision 6.**

For financing and project viability projections the two (2MW) megawatt Agricultural Solar limit needs to be raised to 5 MW immediately and be included within the first two declining blocks.

If we are lucky enough to get into Block 2, we should have the ability to restore a gravel pit, currently, in a Solar Overlay District to an agricultural use for a 5MW project or have the ability to plan today for such eventuality in Block 3.

**Land Use:** Solar Overlay District and Other Allowed Zoning Regulations.

Each municipality will have its own approach to zoning and site plan review regulations processes. If a municipality has a Solar Overlay District or other permissive solar zoning regulations, but requires a "Special Permit" or a variance, waiver or other discretionary approvals, such processes should not be a fatal flaw that disqualifies a STGU from a Category 1 classification.

**Land Use:** Multiple Product Sites:

The Guidelines should not discourage in any way canopy's, roof mount and ground mount systems from existing on the same site and being metered potentially separately from one another depending upon application.

Base compensation rates should apply upon solar type – Building Mounted, Ground Mounted, Canopy Mounted or potentially Floating Mounted systems.

**Land Use: Contiguous Parcels**

This is an example of growth control adding a layer of unnecessary complexity due to a lack of regulatory commitment. The 1600 MW SMART program is reportedly over subscribed before it even starts. The contiguous parcel rule will complicate financing and securing tax-credit participation, as it will span differing tax-credit schedules from 30% in 2019 to 26% in 2020. Additionally, cost will increase as total project cost is front loaded without the ability to complete project construction as well as increased project superintendence, management, general conditions and interest cost will be unnecessarily incurred.

If a developer has a 3-parcel project with 20-acre, a middle 7-acre piece and a 5-acre piece of abutting land and high interconnection cost that requires mitigation by increasing project size, the 20-acre and 5-acre piece will be developed according to current guidelines leaving the middle 7-acres to be developed after commercial operation of the first systems. The middle 7-acre piece will be prepared, most likely with site work, underground piping, seed and planted waiting for the regulatory window to install the racking, panels and medium voltage switchgear. All the while burning interest expense, project soft cost and a duplicate utility interconnection post-mechanical completion lead-time. This Contiguous Parcel rule is a tremendous waste of money and resources that should be removed when substituted with a larger policy objectives under the SMART format.

**Energy Storage Guidelines:**

While this comment is outside the guideline parameters, energy storage systems envisioned to be paired with the SMART program should be expanded to take the place of pipeline requirements during peak periods during the winter and summer months as determined by the Department. Which is to say that DOER working with DPU and ISO-NE would, during the winter months when sunlight is diminished and the panels may be covered with snow, allow the storage devices to be charged during off-peak periods with grid or DG provided electricity and discharged as required by ISO-NE. Payments for delivery and energy but not demand would be charged and cost recovery and profit to the energy storage owner could follow a similar format as already established in approved utility tariffs.

**Statement of Qualification: Bankable Instrument**

The Statement of Qualification needs to clearly state for financing purposes the statements the provide assurance to access the Tariff, the base rate and accepted adders and qualification to receive such rates for twenty-years in the instance of a commercial system.

We appreciate the opportunity to provide these comments and the time that your office extends to reading and acting on public comments.



Best Regards,

A handwritten signature in black ink, appearing to read "Doug Pope", with a long, sweeping horizontal stroke extending to the right.

Doug Pope  
President

Cc: Commissioner Judith Judson  
Secretary Matthew Beaton  
[constituent.services@state.ma.us](mailto:constituent.services@state.ma.us)  
Gerry Palano - MDAR

Attachments: Solar Design Associates – Improved Agricultural Racking Design

Enclosures: MGL 61A (1) & (2)



**61A****Land in agricultural use defined**

Section 1. Land shall be deemed to be in agricultural use when primarily and directly used in raising animals, including, but not limited to, dairy cattle, beef cattle, poultry, sheep, swine, horses, ponies, mules, goats, bees and fur-bearing animals, for the purpose of selling such animals or a product derived from such animals in the regular course of business; or when primarily and directly used in a related manner which is incidental thereto and represents a customary and necessary use in raising such animals and preparing them or the products derived therefrom for market.

**Section 2. Land in horticultural use defined**

Section 2. Land shall be considered to be in horticultural use when primarily and directly used in raising fruits, vegetables, berries, nuts and other foods for human consumption, feed for animals, tobacco, flower, sod, trees, nursery or greenhouse products, and ornamental plants and shrubs for the purpose of selling these products in the regular course of business; or when primarily and directly used in raising forest products under a certified forest management plan, approved by and subject to procedures established by the state forester, designed to improve the quantity and quality of a continuous crop for the purpose of selling these products in the regular course of business; or when primarily and directly used in a related manner which is incidental to those uses and represents a customary and necessary use in raising these products and preparing them for market.