

This comment is further clarification on the problems with limiting SMART agricultural PV on APR land. (original comment following this further clarification)

1. The APR limit of PV to 200% of onsite power consumption was a reasonable limit on PV during the time when substantial farmland acreage was being converted to large solar farms.

This was a proper and useful restriction.

2. To maintain this restriction under SMART with its comprehensive and detailed guidelines to maintain agricultural viability and soil health is counterproductive no useful to either farmers or the purpose of APR program which is to keep farms as working farms.

3. An attempt to justify applying such a restriction to APR land on SMART agricultural PV under SMART could be based on the reasoning that APR status confers benefits on farmers and therefore such a restriction is reasonable. This is fallacious reasoning.

Agricultural PV under SMART rules is meant to allow farmers to engage in dual-cropping on working farm land to produce both food and energy in ways that maintain agricultural productivity and soil health and, at the same time, produce a long-term income stream that supports long-time economic health of the farm as well as contributing to green house gas reduction and helping to mitigate green house gas emissions that are leading to climate catastrophe.

4. By denying the ability for APR farms to take reasonable advantage of SMART Agricultural PV will make it less likely for farmers with access to three phase power to join the APR program since this rule means enormous financial losses for farmers by enrolling in APR as opposed to not joining APR and taking advantage of SMART agriculture dual-cropping PV systems.

This is clear from the example in the original comment:

"I just visited a 90 acre farm with substantial pasture areas perfect for dual-cropping installation. Local zoning permitted 250 kw PV on a parcel. The farm by chance had three parcels and therefor eligible for 750 kw dual-cropping.

A lease agreement for the farmer would provide an estimated \$432,000 of farm income over 20 years from dual cropping with community solar. The farmland had APR status. By limiting agricultural PV because of APR to an

estimated 50 kw would deprive this farm of \$401,000 in come. This can clearly make the difference between developing a financially stable farm and financial failure. This farm was purchased because it was a failed bankrupt APR farm."

5. Yes solar covering farmland with panels and not crops does not belong on MA farmland whether APR land or not. But SMART AG PV is meant to make SMART PV an important tool for farmers with economic and ecological benefit that does not harm the farm or farm productivity beyond de minimus reductions.

6. A reasonable modification of this draft guideline would be to explicitly make SMART agricultural guidelines applicable to APR land. This offers excellent protections for agriculture.

7. If further limitations are desired then SMART agricultural PV on APR land could be limited to 1 megawatt as opposed to the 2 megawatt limit under SMART Agricultural PV.

I see no compelling reason, in fact, that the Agricultural PV under SMART should limit the size of agricultural PV under SMART to 2 megawatts as opposed to the 5 megawatt limit under Smart.

There is between 1 and 1.2 kilowatts of power on a dual-cropping pole. Installed four feet apart with no permanent footing and minimal soil disturbance this means approximately 9 acres per megawatt of AG PV under SNMART. Larger farms will generally have larger expenses. There is no reason that a farmer with 45 acres or more in cultivation should not be able to take advantage of 5 MW of dual cropping, and not be limited to 9 acres or 18 acres for one or two megawatts producing food and energy.

We should leave it up to farmers to decide how they want to manage their land under broad SMART rules and decide how much energy they want to produce as well as food. A farmer with 45 acres or more in production may choose to have 4.5 acres for 500 kilowatts of solar; or may choose to have 5 megawatts of solar under SMART guidelines if it can be approved by the utility. Either case may be key to the economic viability of the farmland and avoid the phenomena of selling bankrupt APR farms to another farmer.

The nature and prosperity of farms in the 21st century will be rooted in the ability of farms to produce both food and pollution free energy in ways that maintain working farms as prosperous, pollution free, and economically viable energy able to sell both food and renewable energy to consumers.

Roy Morrison

## Original comment

I am writing to point out that the provision in the Draft Land Use Guideline limiting the size of dual-cropping agricultural PV units to 200% of onsite power I am writing to point out that the provision in the Draft Land Use Guideline limiting the size of dual-cropping agricultural PV units to 200% of onsite power use on farmland with APR status is a grave error.

1. The effect of the this draft regulation, if not changed, will serve to undermine the willingness of farmers to apply for APR status. If this limit on agricultural PV is imposed, farmers will be forced to forgo substantial farm income from agricultural PV units even if they are or would be in compliance with Agricultural PV guidelines for prime agricultural land.

Adoption of this draft regulations limiting dual-use systems that comply with the detailed agricultural PV guideline for prime farm land will discourage farmers from seeking APR status and therefore make it more likely to convert farmland to non-farm use.

2. The agricultural PV guidelines for PV on prime farmland is based on protecting the agricultural viability of the land by maintaining agricultural productivity and the protecting soil, while allowing the farmer to produce both food and energy and to sell both food and energy to customers. For example, an agricultural PV community soar system could sell both food and energy to farm stand customers and farm CSA members.

3. The 200% restriction on PV output was based on conventional ground based PV systems that do interfere with agricultural productivity and soil health. The agricultural PV guidelines are based on the test plots and research conducted by Prof Stephen Herbert of the Stockbridge Institute using agricultural PV on poles that are the basis for the detailed guidelines for agricultural PV under SMART.

4. The Agricultural PV guidelines under SMART provide comprehensive and detailed guidelines for maintaining agricultural productivity in the (d) Special Provisions for Agricultural Solar Tariff Generation Units, and **Additional Provisions for Agricultural Solar Tariff Generation Units**.

These guidelines require the highest standards based on agricultural science for dual-cropping systems.

5. The procedures for agricultural PV used by my company include review by Prof, Stephen Herbert of design and placement of dual-cropping systems to

assure agricultural viability and productivity based on his scientific judgment. <http://www.dual-cropping.com/>

6. The economic effect on APR farms by insisting on severe limits on APR agricultural PV can be dire. For example. I just visited a 90 acre farm with substantial pasture areas perfect for dual-cropping installation. Local zoning permitted 250 kw PV on a parcel. The farm by chance had three parcels and therefor eligible for 750 kw dual-cropping.

A lease agreement for the farmer would provide an estimated \$432,000 of farm income over 20 years from dual cropping with community solar. The farmland had APR status. By limiting agricultural PV because of APR to an estimated 50 kw would deprive this farm of \$401,000 in come. This can clearly make the difference between developing a financially stable farm and financial failure. This farm was purchased because it was a failed bankrupt APR farm.

**Agricultural PV dual-cropping in accord with a reasonable 2 megawatt limit is an essential step to support farm income and preserve agricultural land. To stop APR land from taking advantage of normal agricultural PV installations undermines the purpose of the SMART agricultural PV initiative which was designed to facilitate dual-use that maintained agricultural viability and productivity on prime farmland.**

6. The purpose of the agricultural PV program is to facilitate dual-cropping under tight agricultural rules, not to limit the ability of APR farms to add a crucial energy crop to there agricultural activities.

7. The guidelines limit agricultural PV on prime farmland to 2 MW. This is about 18 acres pasture or row crop land using PV on properly spaced poles. This is a reasonable limit and should be the standard applied to APR land for agricultural PV. The 200% limit should only be applied to PV not following the detailed agricultural PV rules.

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