

Department of Energy Resources
100 Cambridge Street, Suite 1020
Boston, Massachusetts 02114
Attn: Ms. Kaitlin Kelly

June 1, 2020

Subject: SMART Public Comment on 225 CMR 20.00, and specifically the “Guideline Regarding Land Use, Siting, and Project Segmentation”

Summary: Forests are important for the sequestration of carbon, preservation of wildlife habitat, control of storm-water runoff and prevention of soil erosion, and a sustainable economic resource for central and western Massachusetts. The fundamental environmental principle to “do no harm” means that it makes no sense as Massachusetts State policy to publicly finance the destruction of forests for the construction of large-scale commercial solar arrays, nor create hazards to nearby property and public safety, to improve regional air quality or save the planet from excess carbon dioxide and global warming.

Introduction: The SMART program provides regulatory and financial support of solar power generation and is a real step forward to a more sustainable future. Many homeowners, including my wife and I, have taken advantage of the SREC incentives to produce solar power, and we support many of the goals of the SMART program. There are, however, serious environmental and safety issues related to the present approach to developing commercial solar arrays, particularly in the rural and semi-rural areas of central and western Massachusetts, and these issues need to be addressed in the updated SMART regulations.

My comments below reflect my experience as a professional hydrologist for over 40 years, working for the U.S. Geological Survey, as an instructor for numerous Colleges, Universities, and Professional Organizations, along with consulting for the private sector. The following comments are listed in numerical order.

1. The updated SMART regulations don’t include critical guidelines for the prevention of forest removal via site selection and design criteria for Large-Scale Commercial Solar Development (LSCSD) in Massachusetts.
2. Without strong and explicit guidelines in the SMART regulations for site selection and design criteria, there have been, and will continue to be, serious

environmental failures and safety issues at LSCSDs in Massachusetts, particularly in the central and western regions of the State.

3. Examples of significant failures include, but are likely not limited to, LSCSDs in West Orange, Ware-West Brookfield, and Williamsburg, Massachusetts.

4. In the case of West Orange, it was reported in the news article (<https://www.atholdailynews.com/Inside-Outside-Sept-5-19950652>) that there was significant erosion, sediment transport, and destruction of adjacent property, including a cemetery, immediately after LSCSD construction had begun. The land clearance included the complete removal of all trees, stumps, brush, and other vegetative cover, leaving the ground bare at the LSCSD and open to severe erosion during a large rainfall event (see photograph below). This loss of soil and erosion led to significant environmental destruction that was both predictable and preventable.

5. In the case of the Ware-West Brookfield site, the LSCSD is on a steep slope with a very thin soil cover located near the junction of State Routes 32 and 9, close to the Ware River. Although fully developed, and presumably with all erosion control measures in place, surface and satellite photographs of areas at the perimeter clearly show large areas of erosion from uncontrolled storm-water runoff from the site (see photographs below).

6. The Williamsburg solar array, as reported by the Daily Hampshire Gazette (<https://www.gazettenet.com/Developer-of-Williamsburg-solar-project-sued-by-state-attorney-general-for-polluting-river-34123461>) was a poorly sited and designed LSCSD. After the site was developed, significant damage resulted from “The sedimentation of wetlands near the West Branch Mill River in Williamsburg” and “is the subject of a lawsuit by the state attorney general’s office against Dynamic Energy Solutions, LLC, a company that received approval to build a solar array off Briar Hill Road.” In addition, the Gazette article goes on to say “According to the lawsuit, the construction of the solar array on an 18.5-acre section of a 370-acre property, owned by Hull Forestlands Limited Partnership and spanning both Williamsburg and Goshen, led to altering 97,000 square feet of protected wetlands and more than 41,000 feet of riverfront area, covering the bottom of the river with the equivalent of more than an acre of sediment pollution.”

(See photographs below). So, due to the lack of significant siting and design criteria in the SMART program regulations, the State of Massachusetts Department of Environmental Protection has had to step in and try to correct serious environmental damage that has occurred at this project.

7. From our own experience in Belchertown, our group (Friends of the Pelham Hills) has opposed a LSCSD proposed for development in our neighborhood of Belchertown. This proposed LSCSD was originally designed to involve the denudation of 50 acres of steeply-sloped forested area, adjacent to and in the drainage area of Scarborough Brook, a designated flood zone, a cold-water fishery and a contributing area for a drinking water aquifer. After strenuous opposition by our neighborhood group and 13 different versions of increasing more complex engineering designs, none of which were fully protective of the wetlands, other important environmental resources, or adjacent private properties, the Belchertown Conservation Commission and Planning Board refused to permit this poorly sited and badly designed LSCSD based on the flawed storm-water control plans for the site.

To give only one example of the design flaws in the engineering plans for the above project, a large “retention-detention” basin was proposed to control the storm-water runoff from most of the site. This detention basin was designed to contain millions of gallons of water at peak storm-water storage, and to have a retaining berm (i.e. dam) nearly 400 feet long and 16 feet high. The dam was designed to be located on the top of a very steep slope, 100 feet high, and only 500 feet from a permanent residence on an adjacent property. This storage basin, designed without any input from the MDCR Dam Safety Program, if constructed, would have been a serious threat to the personal safety and property of abutting residents, State Route 9, a major east-west railroad corridor, and local roads, all located immediately downstream of the proposed site.

The proponents of this project have appealed the Belchertown Planning Board’s decisions to Massachusetts Superior Court, and the Conservation Commission’s decision to the Massachusetts Department of Environmental Protection. The lack of State guidelines in the SMART regulations for proper site selection and project design for this LSCSD has now cost our group, and the Town of Belchertown, many thousands of dollars to defend our lives and properties from this project.

8. As demonstrated by the above examples, the inadequacy of the existing DOER SMART guidelines for LSCSDs is not a theoretical problem. The experiments on what can, and will, happen when poorly sited and designed LSCSDs are imposed on smaller towns in the State, where there is little expertise to evaluate the possible impacts of these projects by large corporate entities, has already happened. The smaller Towns in the Commonwealth have volunteer Boards, and these volunteers have had little or no experience in the effects of LSCSD in Central and Western parts of Massachusetts. These Towns also have very limited resources to defend permit denials if appealed by these corporate entities. Often these Corporations use arcane real estate laws to “tie up” these appeals, potentially dragging the proceedings out over years, and bleeding the financial resources of the Towns. Again, the lack of State guidelines in the SMART program for proper site and project design for LSCSDs is imposing a significant financial and environmental burden on our part of the State.

9. The key to the problems noted above is the lack of specific DOER guidelines and criteria to help preserve forest cover in the existing and updated SMART program to develop Large-Scale Solar Commercial arrays in Massachusetts. Forests are important for the sequestration of carbon, preservation of wildlife habitat, control of storm-water runoff and prevention of soil erosion, and maintaining a sustainable economic resource for central and western Massachusetts. To publicly finance the wholesale destruction of forests by developing poorly sited and inadequately designed large-scale commercial solar arrays makes no sense whatsoever as a public policy for Massachusetts.

10. Large-Scale Commercial Solar Developments aren't agricultural projects in any way, shape, or form; LSCSDs are industrial-sized electrical generation facilities. As such, they impose industrial-scale problems in rural areas. In addition to the environmental problems noted above, other problems include serious safety problems in the local electrical grid from the power surges that occur from the LSCSD arrays as the amount of electrical energy varies from clouds (changing weather) passing over the arrays. There have been anecdotal reports in our area of serious local electrical surges and brownouts at nearby homes as overloaded electrical systems try to compensate for these variations in power entering the local grid. It's also our understanding that National Grid, the electrical power distributor in our area, has put a “hold” on new commercial solar array connections until they

complete a study of the ability of the existing electrical grid to absorb new generating capacity, and are making recommendations on what new infrastructure is necessary to insure the safety and reliability of the system with additional LSCSD installations. To encourage the development of commercial solar arrays in agricultural or rural-residential areas without adequate electrical grid infrastructure to handle the added power load is very poor public policy.

11. In order to deal with the environmental and safety issues noted above, additional ineligible land uses need to be added to the SMART regulations, specifically: SOLAR MASSACHUSETTS RENEWABLE TARGET PROGRAM (225 CMR 20.00), “Guideline Regarding Land Use, Siting, and Project Segmentation”.

An example of language suggested for the guideline that would help control and prevent the wholesale removal of forest as part of large-scale commercial solar developments, and the problems with the imposition of industrial-sized solar power developments in rural-residential areas, is based on the new solar bylaw passed by Belchertown Town meeting last year (2019). Suggested wording to include in the SMART land Use guidelines (section 5) would be:

(7) A parcel will be considered ineligible if it is proposed for a project that contains

- (a) an area that is greater than 20 acres in the fenced array,
- (b) an area that requires forest clearing greater than 10 acres,
- (c) areas with slopes of 8% or greater as averaged over 50 horizontal feet; the local Planning Board may consider waiving this up to 12% based on site-specific design parameters for adequate control of storm-water runoff.

These simple, reasonable, yet effective, limits on the size of large-scale solar arrays, on how much forest can be removed in developing them, and on the slopes on which they are developed provides safeguards on the local impacts that can or should be tolerated. These simple requirements would also provide a clear statement on what is acceptable for these developments, given the purpose of the SMART program, which is to promote carbon-neutral electric generation. Destroying forests to put up solar arrays can hardly be considered carbon neutral.

12. I would point out that this situation is similar to the State's responsibility in providing minimum State-wide standards expected for the environmental protection of wetlands and storm-water control, and that creation of these minimum standards of protection for natural resources is necessary when the application of public funds is used as an incentive to encourage the construction of large-scale commercial solar developments in Massachusetts. I sincerely hope that you include stronger and more focused mandates in the updated SMART regulations to eliminate the wholesale destruction of forested land for solar development in Massachusetts, and to provide minimum protection for property and public safety.

Conclusion: From my perspective every roof, parking lot, highway right-of-way, power-line right-of-way, landfill, and brown field should be utilized for solar power generation before there is any public policy creating publicly-funded incentives for wholesale removal of forests for solar array developments. This is common sense, an "Environmental Policy 101", which is in essence to "do no harm" in your efforts to improve the environmental quality of our region or the planet as a whole.

Thank you for your attention to this important issue.

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A photograph of the extreme erosion that occurred at the West Orange site in 2018.



A photograph of erosion that occurred at the Ware-West Brookfield site (2018).



A satellite photograph of erosion that occurred at the Ware-West Brookfield site.



(Photographs from Daily Hampshire Gazette)



Photographs of erosional damage to wetlands adjacent to the Williamsburg site.