

202 Bay Road
Norton, MA 02766

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By E-Mail: doer.smart@mass.gov

Department of Energy Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114
Attention: Kaitlin Kelly

Re: Revised SMART Program Regulations (225 CMR 20.00) – Public Comments

I am writing as a concerned Massachusetts resident and as a member of RRSE – Residents for Responsible Solar Energy.

RRSE is a local group with members from the Towns of Norton, Kingston, Carver and Dartmouth. Our mission is to ensure solar energy facilities are installed safely in appropriate locations and do not infringe upon the rights of the citizens of Massachusetts.

The revised SMART Program regulations raise many concerns including the following:

The revised regulations require energy storage on all projects over 500kW.

- The SMART Program began in 2018 and introduced a battery storage incentive.
- Prior to the SMART Program, according to the DOER, no large-scale solar projects were built in Massachusetts with battery or energy storage systems – unless retrofitted.
- Since most Massachusetts municipalities approved large scale solar bylaws prior to 2018, when battery or energy storage systems were not utilized in large scale solar projects, it is simply not possible that the voters who approved these bylaws intended to include battery or energy storage systems.
- In order for the DOER to require battery and energy storage systems in all projects over 500 kW, municipal residents must amend their Towns' bylaws to allow battery or energy storage.
- The DOER must notify all municipalities and all Massachusetts residents of the potential impact of this change in the regulations requiring large scale batteries and energy storage and the need to modify their respective Town bylaws.

- All projects scheduled or planned in Towns in Massachusetts without specific bylaw language allowing battery or energy storage usage should be postponed until the Towns where projects are planned have bylaws that allow battery or energy storage.
- The Citizens of Massachusetts have a right to due process and private property protection, to be able to decide when, where and under what conditions they will allow energy storage systems in their Towns. Energy storage systems are not typical, customary or accessories and can be hazardous.

Battery storage systems using lithium-ion batteries may contain hazardous materials such as cobalt.

- According to published sources, “Cobalt itself is toxic and unstable. When used in lithium-ion batteries, it provides the risk of thermal runaway, a chemical reaction internal to the battery, regardless of ambient temperature.”
- “When a battery containing cobalt degenerates and goes into a state of thermal runaway, it becomes an unmitigated fire that is toxic and cannot be extinguished by water or flame retardants or contained within its housing.”
- “Instead, the fire must be allowed to burn, releasing toxic fumes. The electrolyte in a lithium-ion battery is flammable and generally contains lithium hexafluorophosphate (LiPF₆) or other Li-salts containing fluorine.”
- “Lithium hexafluorophosphate (LiPF₆) contains the following warnings (Respiratory sensitization, Germ cell mutagenicity, Carcinogenicity, Reproductive toxicity, Specific Target Organ Toxicity, and Aspiration Hazard).”
- “When these lithium-ion batteries catch on fire, they emit the toxic gases hydrogen fluoride and phosphoryl fluoride.”
- **How does the DOER plan to deal with the hazards to communities from a battery storage system catastrophe, when existing safety protocols are ineffective?** For example, contamination to local well water supplies?
- In the Town of Norton, there is a plan to put a 3.9 MW project with 10,000 solar panels on approximately 23 acres of cranberry bogs and to store the energy in 292,683 pounds of lithium-ion batteries containing cobalt. The batteries alone weigh more than two M1 Abrams tanks and will be stored in 8 industrial containers. The energy storage system would be located in an ACEC (Area of Critical Environmental Concern), well protection zone and flood plain. **Does this make sense?**

- Large scale energy storage systems should only be placed in locations where if catastrophic events occur, the hazards can be minimized, such as industrial areas, where power plants belong.

Why is the DOER encouraging large scale solar development and energy storage in residential neighborhoods?

- Do large scale power plants belong in residential areas?
- Placing grid scale systems in residential areas is contrary to historical zoning for use, places residents at unnecessary health risk and noise and damages property values.
- Examples of hazardous materials from these systems include lead and zinc from the galvanized steel piles and solar panels.
- ACEC's (Areas of Critical Environmental Concern), well protection zones and flood plains should be included in ineligible land use areas in the revised regulations. The DOER should prohibit solar development of these sensitive areas in the new regulations.
Why is solar development allowed in these areas in the revised regulations?

- It makes no sense to put large scale energy storage systems into these sensitive areas.

The SMART Program is expanding from 1600 MW to 3200 MW capacity.

- What is the expected financial cost to Massachusetts citizens and taxpayers for this program?
- According to the US Energy Information Administration, the average retail cost of electricity in cents per kw hour in the US is 10.53 cents. Massachusetts average retail cost is 18.5 cents or the 3rd highest in the nation after Hawaii and Alaska.
- **How much of the average cost difference is due to Massachusetts alternative energy programs and subsidy?**
- Even when considering promised decommissioning plans, does the DOER have plans for dealing with the tremendous hazardous waste problems it is causing by creating seas of panels and grid scale battery storage systems across Massachusetts?
 - a. Is the DOER plan to ship this hazardous waste out of state?
 - b. Since solar projects are at minimum 20 years in length, the project materials may not be recyclable in 20 years and the project developers long gone.

- The panels for the project in Norton are only 17.93% to 18.95% effective in energy transmission, thus requiring more panels to generate the desired energy because of limited existing technology. Solar projects require subsidy because they cannot exist without it under current market conditions and technology.
 - a. Why not put the funds for expanding the program into research to make the panels more effective and the batteries more efficient instead of adding to the blight of seas of panels popping up everywhere across the State?
- Considering the many serious issues including health, safety, water quality, property values, noise and the environment raised by Massachusetts residents to the DOER over the past year regarding the SMART program, where in these revised regulations are those concerns addressed?
- The revised regulations have a section on non-compliance involving notice requirement, publication and suspension or revocation.
 - a. Why is there no stated process for removal of a project when criteria are not being met?

Most people are hopeful that solar will be part of our energy future. Better, more efficient panels and batteries systems are needed to realize that future. Therefore, solar research is more important than additional solar subsidy, which is creating a blight of inefficient panels and hazards to the environment and to the health, safety, and welfare of the people.

Let us proceed cautiously instead and address citizen concerns so that we have a safe future that benefits everyone. If we fail to address these concerns, the public may not call this the “SMART” program in the future, when the program results in mountains of hazardous waste from seas of panel blight, increased utility costs, damage to residents’ health and the environment, contaminated drinking water and lower property values. A well-meaning program does not guarantee good results when serious concerns are overlooked.

Very truly yours,

Joseph Cogliano

Joseph D. Cogliano, Jr.

cc: DOER Director Eric Steltzer