

SMART Stakeholder Feedback 2024

Submitted by

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General Overview/Background

I am on the Warren Conservation Commission – and am writing as an individual with a deep understanding of the permitting process, Wetland regulations, and how solar sites are constructed. I have been involved in the review of 16 solar projects, 12 are built or being built, 4 have not moved forward for various reasons. My feedback is coming from a municipal standpoint.

2023 produced two very significant, data-driven reports that the SMART program should refer to when incentivizing siting locations. 1) July 2023 DOER report, Massachusetts Technical Potential of Solar, which establishes that Massachusetts has 15-18 times the needed available land to meet its climate goals. 2) Equally important is the October 2023 Mass Audubon/Harvard Forest report, Growing Solar, Protecting Nature – which establishes clear recommendations that enable the Commonwealth to meet its climate goals without compromising the carbon sequestration/storage and resilience of natural lands.

DOER's Technical Potential of Solar report states (Section 3.1) that "Massachusetts' solar siting policies should align with the Commonwealth's existing goals and strategies with regards to land use and natural resource management." The report's website further states that "Massachusetts has more than enough solar potential to support our decarbonization requirements – about 15-18 times what we likely need. Further, the best rated parcels add up to double the amount of solar called for in the 2050 Decarbonization Roadmap. **Because of the amount of suitable solar potential identified, we can be aggressive with our solar policy while balancing land use priorities and protecting our natural resources.**"

Finally, the current purpose of 225 CMR 20.00 is much too narrow and outdated, promoting the development of solar at the expense of complementary mitigation and resiliency efforts.

An initial and crucial change in the SMART regulations should include an update to the stated Purpose section. The purpose section needs to be broadened to align with climate policies established in the Clean Energy and Climate Plan for 2025 and 2030, the Clean Energy and Climate Plan for 2050, and DOER's Technical Potential of Solar report, so as to contextualize

SMART as part of a **multi-pronged approach** that protects carbon sequestration/storage and in particular forested, agricultural, and environmentally important lands in the Commonwealth.

RESPONSES

1. The SMART program currently provides added incentives for certain project types, including building mounted, canopy mounted, landfill, brownfield, agricultural, floating, community solar, and projects serving low income or public entities, projects with energy storage, and axis racking. DOER seeks additional feedback on changes or improvements that will advance achievement of the Commonwealth's 2050 GWSA mandates while balancing land use, equity, and economic considerations.

a. What project type incentive changes could improve program outcomes?

1. Eliminate the following Incentives/Adders for:

- a.** Community Shared Solar - for its loophole which allows siting on high biodiversity lands. OR - **KEEP the adder if siting on high biodiversity lands exception is eliminated.**
- b.** The Public Entity Adder – for its allowing the development in BioMap areas, contrary to regular SMART restrictions, and allows for granting a subsidy prior to local permitting – key exemptions that developers have tried to exploit. OR **KEEP the adder if siting on bio-map areas lands exception is eliminated – AS WELL as eliminating granting the subsidy prior to local permitting.** *We have had several half baked projects come before us that never should have seen the light of day. Unless and until the applicants have fully formed , well thought out plans, incentives should be withheld.*
- c.** Any sized project located on valuable natural and working lands (forest and farm)
- d. Energy Storage System adder.** ESS are an added expense. If the applicant gets in on an early block, the base compensation plus the adder give enough wiggle room to include a battery system that can store 100% capacity, and perhaps up to double capacity. Those that get in on a later block find the base compensation plus the adder insufficient, so they install the minimum required battery system – which is ineffective in meeting the states energy goals. The Battery storage adder needs to be sufficient to cover battery expenses NO MATTER the base incentive rate – which block they are part of.

Alternately, given the risks of lithium-ion batteries perhaps higher adders can be given for NON-lithium Ion batters.

- e. Floating Solar Units:** Given that solar is only inert when NOT BROKEN (and the surface is not painted with Pfas chemicals to reduce spotting) – why risk placing panels on water? Hail, hoodlums, and fire could damage panels and expose the

innards making them “active”. Currently, floating panels are NOT allowed on salt ponds, freshwater lakes and great ponds. What are left are small ponds and reservoirs - for our drinking water. Pfas is incredibly dangerous even in small doses. We have so many other NON water based locations to site panels, lets take floating panels off the table. If we reach a point in the future where Floating units are needed, we address these then.

- f. **Agricultural Solar Tarif Generation.** For similar reasons to floating units – no one wishes to have PFAS or other chemicals on their soybeans or lettuce..... One broken panel that captures rain then drips on the plants is enough deterrent for me to say no. Panels DO break. Warren has over 1.5 million panels currently installed – and several have broken and have been replaced several weeks later – they have been dropped during construction, hale has broken one or more, kids with rocks or bbguns, and fire has damaged panels.

Co-siting crops and panels also will increase the cost of the produce because farming equipment cannot be used around the panels – only in between. Live stock? Similar concerns. Dairy cows could work if the panels are not painted with “dust and spotting” preventer – and panels don’t break. Cows will rub against the sides of the panels – they are large and strong – and could damage the edges. Contemporary panels (vs 10 years ago) are more delicate. Goats? They will climb on the panels.

IF and when we need to utilize farmland, lets address it then. In the meantime, lets take the adder off the table and use the money to beef up the incentive for brownfield and degraded land development.

- g. **Customer Disclosure Form Exception** for low income community shared STGU’s or Community shared STGU. Any opportunity to game the system will be taken advantage of – we see it in local permitting boards across the state. Accountability is imperative.

2. Substantially **increase incentives** for the following:

- a. solar on rooftops
- b. Solar on previously developed lands
- c. Canopy projects!!!
- d. Building mounted solar if it’s a significant in size.
- e. Projects located in urban and suburban areas – closer to where the demand is high.

3. Other Changes:

- a. **ADD attractors for development along the Mass Pike** verges and center greens. There is SO much unused space in these locations! The logistics will be more complicated but the amount of open, unusable space is enormous

- b. **Greenfield Subtractors:** INCREASE the subtractor, and remove any exceptions, particularly since “good cause” is NOT defined.

Massachusetts climate and energy goals must be met by a multi-pronged approach – protecting our climate-battling forests by prioritizing the siting of renewable energy (in particular, solar) on previously degraded land, highway verges, rooftops, buildings, etc. Protecting forests is imperative for the sequestration of carbon (while cutting forests releases carbon), for maintaining cooler air, and for water storage and protection against drought. Further, the conversion of farm to solar, although convenient for solar development, impacts our ability to reduce our carbon footprint by purchasing local produce vs produce shipped across the world. Combining Solar with agriculture sounds ideal, but complicates farming logistics thus increasing the cost of produce – making it more difficult for the farmer to sell and for the community to support them. Overall, incentives for work on previously degraded areas should generously be incentivized – and work in green areas – forest and farm – should be rigorously discouraged. Builders will build wherever they can make the most profit – lets make NON green areas more profitable!

b. Should other project types also be prioritized?

Mentioned above, projects built on highway verges and in the green areas between directions (ie, on the mass pike green between east and west lanes).

Based on the recommendations of the Growing Solar, Protecting Nature report, the DOER Technical Potential of Solar report, the Commonwealth’s Clean Energy and Climate Plans for 2025 and 2030, and the Clean Energy and Climate Plan for 2050, I would suggest the following goals, which SMART can directly impact.

1. SMART should strongly incentivize (create Adders and regulations) so that every flat commercial roof in the Commonwealth has rooftop solar. Notably, the SMART subsidy should allow for costs related to retrofitting existing structures to support the added weight of roof tops.
2. There should also be Adder points for co-located canopies.
3. Small-scale microgrids can help establish true resiliency; those owned by municipal, or nonprofit ownership of the Solar Tariff Generation Units should be encouraged [again DOER needs to avoid the pitfalls of the Public Entity model where private development on private land pretend to be public].
4. Similarly, generously incentivizing private microgrids – with battery systems for corporate/industrial parks, neighborhoods, etc.

2. The current SMART program structure includes a declining block model. Is a structure with fewer blocks and a greater decline between blocks preferable to a greater number of blocks with a smaller decline between blocks? Are there any other modifications to the declining block model structure that could more effectively support solar development?

This is a challenging question – I can see the benefit to KEEPING IT, and to changing or even eliminating it: the declining model does create a sense of urgency – its competitive! But by the time the distribution company is at the 11th or...13th block (I don't know what the tipping point is), the base rate is no longer a motivating incentive – especially with the requirement for battery systems. Many solar companies tell me that they prefer to Net Meter.

What many Towns have been seeing is a rush of applicants in the early blocks– all anxious to get IN early and increase profits. We all get this. Everything is a rush, and more often than not, they have submitted half baked projects: they haven't performed groundwater testing, soils testing, their plans are missing access roads – they throw drawing of panels on a surveyed parcel and a square for the inverter and hope the local board is too dumb to know the difference. Further, the level of “bullying” goes up - the permitting boards are threatened with lawsuits for asking for required material (ie, to follow stormwater standards), AND WHAT IS WORSE and unforgivable – They go after landowners - landowners they want to court to site the project or the access road are misled and some have been threatened. It has been an eye opener. What I can say is that the behavior of a few solar applicants has been the best NEGATIVE PR for solar development. it has been horrible. Citizens that were once interested in solar or at least neutral – have become rabidly anti-solar because of how many (not all!!) solar applicants have behaved. And much of this aggressive behavior has been driven by the desire to GET IN EARLY.

Suggestions: –Perhaps fewer blocks with the lowest incentive not going below a certain point – OR – eliminating the block model all together and keeping the base incentive at a rate that entices. A greater % of EACH BLOCK (50%) could be dedicated to 2.5-5Mw sites on degraded land. Ultimately, the goal of any incentive – is not to encourage behavior that would take place anyway – but to encourage behavior that is challenging yet necessary. In order to meet our climate goals, we need to sequester carbon AND develop renewable energy sites. The incentives should really be generous when encouraging development on previously built/degraded sites, which can be more challenging and certainly are more costly. We need to make this worth their while - and simultaneously, we need to distract them from the easier low hanging fruit. If the base is decent enough, it may be easier to build on forested land than to build a canopy on the Natick Mall parking lot. But if the greenfield subcontractors make it just painful enough, they will start to look more closely at the Natick Mall after all. Win Win Win.

As stated above – Why not build on degraded land first, THEN look at open space/forest next, THEN water and farm.....ONLY if we need. The DOER has the power to prioritize and help the state meet not just renewable energy goals, but the climate goals as well.

3. Are any eligibility criteria in the SMART program a barrier to participation? What are they, and how would you address these barriers? How would you streamline these eligibility criteria?

I have been on the permitting side – but after frank discussions with many applicants – and after reading through many DOER documents, including 225 CMR 20.00 – it is clear that this is an incredibly painful, complicated process – AND there are places that the applicant can get moved to the back of the line. There IS a fine line between vetting for professional, good

projects and then overthinking/working the vetting process. This process looks painful – part of it is not the SMART application but the tie in process. When things are painful, one is inclined to try to game the system if the incentive is right!. We have seen this over and over on the permitting side. The developers with deep pockets and teams of lawyers know all the loopholes and ways to work the system..... to shave off added expenses - at the expense of abutters, the wetlands, the town.

In a recent conversation with an applicant / builder, I have been told that the smart program is no longer that enticing and that Net Metering is the way to go....for now.

4. Is the current SMART reservation period (excluding any blanket extensions) adequate given current development and construction timelines? If possible, please provide a representative project timeline inclusive of key project milestones, such as permitting, procurement, and interconnection, to help inform DOER's understanding of the development process and current project timelines.

I DO know that it is sometimes challenging for developers to walk the tight line between getting the interconnect and permits lined up in time to apply for and receive approval. If one gets pulled into an energy study with the distribution company – that can put permits in jeopardy and of course, the block the applicant gets into.

5. Are there any emerging technologies or project types that are not currently eligible for SMART that DOER should consider making eligible for the program? Please describe potential project applications, any suggestions for eligibility requirements, and what level of incentives if any would be needed spur project development of the project type.

1. Municipalities should be able to own the subsidized solar installations, ie the Solar Tariff Generation Units. Funds for the subsidy could be allocated to the state's Green Bank with the value of the subsidy earmarked for the municipality's climate related developments (rather than being reliant on competitive MVP or META grants). This would enable municipalities to increase their solar deployment and create additional climate mitigation projects such as stormwater control, flooding mitigation, heat and drought mitigation, etc.
2. Small-scale microgrids to establish true sustainability should be encouraged with municipal, nonprofit and even private ownership of the Solar Tariff Generation Units. Similarly, currently allowing, if not incentivizing, the linking of current solar installations, including residential rooftops, to increase energy resiliency, should occur.

6. Are program compliance requirements clear prior to program enrollment? What are the key challenges with satisfying the data and/or documentation requirements for various program compliance checks, such as compliance with the energy storage, low-income, or community solar requirements? Are there any modifications you would suggest to DOER's compliance processes, or alternative data/documentation you believe could satisfy the requirements?

1. Towns -and in particular – permitting boards would be better armed to help (or prevent misbehavior) if we were better educated on compliance and requirements.
2. It would also be beneficial all around if DOER would reach out to Towns to provide feedback during the application review process – the applicant would have had to received a special permit. We have had applicants that have been fully compliant professionals and others that seem to be out for the money but not to design (and I suspect build!) a good project. Bringing towns into this process would be a good way to improve relations with communities – many of which have a tarnished view of solar.
3. The Low Income community and Community shard STGU needs to be rethought or eliminated. I would suggest expanding ways to help low income communities and encouraging community solar! But perhaps OUTSIDE of the SMART program. The record keeping / proof requirement is much too lax – there should be NO exemption from submitting disclosure / enrollment forms. In doing so, DOER is handing out the means to counter a subcontractor with NO effort.
4. **ELIMINATE THIS LOOPHOLE!!** After panels, inverters, etc have been installed, the Electrical Inspector visits the site, turns on the power to allow testing, and if it works gives the site approval. **Once the site is ON – DOER pays the STGU its incentive.** The issue is that the electrical inspector can sign off on the project, but the building inspector can be waiting for sitework to be complete or for the project to come into compliance. DOER will pay incentives on projects that do not have a Certificate of Occupancy. This has happened in Warren. The applicant doesn't care if they don't have a COO unless they wish to sell the project. The TOWN, however, is now stuck with an incomplete site (Ie, stormwater not fully functioning, site not fully stabilized, erosion under panels' drip edges, etc etc). This skirty of the programs intent has happened ONLY with one sight – thankfully. What compounded this issue is that the applicant ALSO ignored the special permit conditions AND the Bylaw by ignoring the setback and working RIGHT TO THE ABUTTER property Line. Now that the site is operational and they have \$2M+ in hand, what incentive do they have to fix the problems?

DOER MUST REQUIRE that both Electrical Inspector approval AND a Certificate of Occupancy be submitted prior to issuing incentive payments!!! If more applicants follow this loophole, many towns will be stuck with incomplete sitework, erosion, and worse – applicants that feel empowered to ignore special permit conditions or the need to follow regulations or bylaws.

7. Are SMART application processes and requirements clear? Is communication between applicants, the Solar Program Administrator, and DOER clear and effective? Please describe any improvements you believe could be made to the SMART application process.

The entire SMART process from application through to approval process is opaque to the public and to host municipalities. The SMART program is distributing large amounts of public money to private entities yet public access to data is minimal.

The SMART program needs to be administered to intentionally increase public access and transparency. Likely many other parts of the Massachusetts government, there needs to be a public facing, easy to access website for the entire SMART process. All applications should be listed within 30 days of receipt by DOER along with communications and decisions made through to approval. Since proprietary information is paramount for the developers, the application process and documents should be redesigned so that the small percentage of truly proprietary information can be withheld but the majority of information is available to the public, including local permitting boards. Similar to the requirement with Open Meeting Law, a reasonable person must be able to understand the project in meaningful detail.

It would be beneficial for host municipalities to have access to timely and detailed information. In particular, sharing of information should be as follows:

1. This information should be required to be sent to the municipality's fire department, executive body, board of health, planning board and zoning board of appeals. *20.06: Qualification and Block Reservation Process for Solar Tariff Generation Units, (1) Statement of Qualification Application (a) Authorization to Interconnect.*
2. An Executed Contract to be sent to the municipality's fire department, executive body, board of health, planning board and zoning board of appeals.
Expand Required Documentation for Solar Tariff Generation Units with Rated Capacities of 25 kW or Less
3. Expand the notification process to include host municipality. The Application Review Procedures (2) currently reads: *a. The Solar Program Administrator will notify the applicant when the Statement of Qualification Application is administratively complete or if additional information is required pursuant to 225 CMR 20.06(2).*
4. Current requirement should be changed regarding notification to include host municipality
(3) Issuance or Non-issuance of a Statement of Qualification
 - a. If the Department finds that a Generation Unit meets the requirements for eligibility as a Solar Tariff Generation Unit pursuant to 225 CMR 20.00, the Solar Program Administrator will provide the Owner of such Unit or the Authorized Agent of the Owner with a Statement of Qualification.
 - b. The Statement of Qualification shall include any applicable restrictions and conditions that the Department deems necessary to ensure compliance by a particular Solar Tariff Generation Unit with the provisions of 225 CMR 20.00.
 - c. If a Generation Unit does not meet the requirements for eligibility as a Solar Tariff Generation Unit under 225 CMR 20.00, the Solar Program Administrator shall provide written notice to the Owner or to the Authorized Agent of the Owner, including the reasons for such finding.
5. Current requirement should be changed regarding notification from the owner to the Solar Administrator to include host municipality:

- a. Notification Requirements for Change in Ownership, Generation Capacity, or Contact Information (6)
- b. The Owner or Authorized Agent of a Solar Tariff Generation Unit shall notify the Solar Program Administrator of any changes in the ownership, capacity, or contact information for the Solar Tariff Generation Unit. The Owner or Authorized Agent shall submit the notification to the Solar Program Administrator no later than five days following the end of the month during which such changes were implemented. .

8. Are there solar canopy project types that currently fall outside the SMART program's definition of Solar Canopy that you believe should be eligible for the Canopy adder? Please provide example project types and describe their benefits.

1. All Canopies should be considered. The incentive should be increased – using the funds that were allotted to floating and agri-solar.
2. The third requirement: *3. The Solar Tariff Generation Unit will maintain the function of the area beneath the canopy* – may need to be clarified/changed. If a canopy is over a large portion of the Natick mall parking lot– and the asphalt has potholes, is the solar company STGU now responsible for repaving the area under the panels? That is a pretty clear dis-incentive.

9. Are there examples of dual use agrivoltaics policies in other jurisdictions that align with Massachusetts' solar and agricultural objectives? Please provide citations and summaries of those policies.

I see this dual use as counter productive and would like to see it eliminated until and unless it is necessary.

Dual use should be limited to grazing or on land along the perimeter of active growing land. Any solar development that creates shade on growing areas should be deemed ineligible. Reducing the Commonwealth's growing capacity goes against other initiatives seeking to promote food sustainability in the state.

A priority of the Commonwealth is to grow our agricultural base for increased resiliency in the face of climate change. *The Growing Solar, Protecting Nature* report, references the New England Food Vision of 50 by 60" – that 50% of New Englanders' food would be grown locally by 2060. The 2 million acres of farmland in New England provide only 12% of our food, while 10 to 15% of households report not having enough to eat. New England has the capacity to expand its farmland from 2 million acres to 6 million acres, accomplishing the 50 by '60 goal while simultaneously reducing our "farm footprint," leaving 70% of the region forested, reconnecting people with the land, and enhancing wildlife habitat. "The current SMART regulations in relation to agrovoltatics do not align with the idea of growing resilient agricultural land in the Commonwealth.

Particular changes to the SMART regs should be made to make evaluation of the impact on agriculture by solar canopies more objective. The bar now, “not to interfere” is vague and open to exploitation and can lead to legal challenges.

More importantly, however, the SMART regs create bad policy by allowing large scale solar development on agriculture with no prior data that shows its effectiveness or has demonstrated mitigation of potential harms. No solar development should be allowed without prior documentation that objectively based, “non-interference” can be achieved. Currently the SMART regs basically allow for a large scale, publicly subsidized experiment with the potential for significant impact; rather this should be a small pilot program.

10. What modifications to SMART incentive payment calculations, as currently set forth in 225 CMR 20.08, if any, are needed? Please provide examples formulas or calculations for DOER review.

No Comment

11. How could the program be designed to insulate projects and participants from unforeseen market circumstances that materially impact the value of the SMART program incentive? For example, global events impact supply chain and energy costs.

No Comment

12. What additional consumer protection measures or modifications to existing measures should the SMART program incorporate to ensure such protections are achieving their objectives, especially as they pertain to low-income customers?

1. Any Auditing requirement should not EVERY be waived (ie, as in Low Income and community solar). Proof of performance should always be required
2. Public Health, Safety and Welfare Provisions. More broadly, there are no consumer protections in the regulations for residents of either the host or neighboring municipalities of SMART projects. Most dramatically, the SMART regulations do not mention and certainly don't currently require any safety, environmental protection, or quality of life measures. Since the Supreme Judicial Court and the Attorney General have dramatically limited municipalities' ability to regulate solar, the protection of public health, safety and welfare, needs to be explicitly established in the SMART regulations. Examples include:

- a. If energy storage systems are required for a SMART subsidy, there needs to be protection against the high risk of fire and the resulting forest fires, air contamination and water contamination – which should include arming the fire department with necessary SCUBA gear and foam – means to fight the fire. Minimally – the fire departments should be trained on how to mitigate a Battery system fire – from evacuation to suppression.
- b. Some solar panels include a PFAS coating that comes in direct contact with rain and snow. There is no prohibition on the use of PFAS in solar arrays subsidized by SMART.

13. Are there any Commonwealth policies (e.g., renewable energy goals, land use priorities, housing policy) that you believe the SMART program inadvertently conflicts with? Please describe any potential modifications to SMART that would alleviate these conflicts.

YES! In practice, the SMART program conflicts with:

- The Massachusetts Technical Potential of Solar Report which, as of 2023, documents that there is 15-18 times the available land for the Commonwealth to meet its climate goals and creates a system based on suitability for where siting of solar should occur. The SMART regs should align with this approach.
- The Massachusetts Clean Energy and Climate Plan for 2025 and 2030. For example, on page 91, the report states that “Natural and working lands’ ability to sequester emissions will be a critical component of achieving net zero GHG emissions in Massachusetts”. Further, it states that “To retain NWL [Natural Working Lands] carbon sequestration capacity for 2050 and prevent further emissions, the Commonwealth is committing, through state conservation efforts, to the goal of increasing permanent conservation of undeveloped land and water (including wetlands) in Massachusetts to at least 28% and 30% by 2025 and 2030, respectively.”
- The Massachusetts Clean Energy and Climate Plan for 2050. In terms of protection of forests and agriculture, the Plan states that “climate-intensified ecological disturbances, the conversion of forests to other land uses, and a slowdown in the growth of Massachusetts’ aging forests present considerable risks and challenges to maintaining current levels of carbon sequestration through 2050. In terms of community engagement, the Plan states that “EEA will increase engagement with cities and towns across the Commonwealth to help communities build and implement town-specific climate mitigation plans while ensuring that available data and implementation approaches are consistent across the Commonwealth.”
- The BioMap program. This longstanding program, established by MassWildlife and The Nature Conservancy with support from the Executive Office of Energy & Environmental Affairs needs further protection from SMART projects. While current regulations ostensibly protect BioMap land, in practice, this does not happen and loophole exist, created by 1) the various Categories of eligibility and related exemptions and 2) the Adder/Subtractor system, whereby land on BioMap can occur with the claiming of Adders.
- Various environmental protections that seek to prevent contamination of drinking water/water supply. Two examples that exist via SMART projects are the risk of contamination from lithium-ion energy storage systems (ESS) and the use of PFAS on solar arrays.

14. Is there any additional feedback you wish to provide to DOER?

1. **Change land use eligibility.** General improvements that are needed:

- a. The categorization of eligible and ineligible land is not clear and makes convoluted references between pre-publication status and post-publication status. There should only be one set of categories.
 - b. Categories should be re-designed to align with the Massachusetts Technical Potential of Solar Report and the Growing Solar, Protecting Nature reports.
 - c. Eligibility and ineligibility should be made clear with no exemptions.
2. Given the limitations on municipal zoning and local regulation of solar established by the Supreme Judicial Court and the Attorney General, Category 2 Land Use should be rewritten since the courts have limited the effectiveness of local zoning in regards to solar. Current regs read:

Category 2 Land Use. Solar Tariff Generation Units not otherwise designated Category 1 that are ground-mounted with a capacity greater than 500 kW and less than or equal to 5,000 kW that are sited within a solar overlay district or that comply with established local zoning that explicitly addresses solar or power generation, shall be designated as Category 2 Land Use as in 20.05(5)(e)3.
3. Ineligible Land Use needs to be strengthened so that loopholes do not allow for development on ineligible land such as BioMap. Current regs result in building on BioMap land if they are deemed Category 1 which include agricultural land or that comply with local zoning (but notably local zoning cannot prohibit development on BioMap so this is circular logic).
4. Not only Allow for, but REQUIRE appropriate PILOT. Municipalities that host SMART subsidized installations should be free of Department of Revenue constraints whereby PILOT agreements are based on the value of the real property on site (the steel and solar panels of the project) and rather be allowed to negotiate a SMART PILOT that is based on estimated revenue. Currently private developers claim that solar projects financially assist municipalities, (some do! Some have REFUSED to agree to a PILOT AND have skirted paying taxes via loopholes) but the relatively smaller DOR PILOT does not reflect the larger financial gains the private developers are reaping via the publicly funded SMART subsidy. Additional funds can be directed to climate mitigation projects by the municipalities. Additionally, the SMART regs must require developers to share the revenue estimates provided to DOER with municipalities rather than claim this is proprietary information. If a private firm wants to get a significant public subsidy, it is only reasonable to expect that some financial data is made available to the public.
5. Increase Set-aside for Solar Tariff Generation Units Less than or Equal to 25 kW in each block to encourage small scale development. Using the Massachusetts Technical Potential of Solar and the Growing Solar, Protecting Nature reports as a guide, the SMART regulations should encourage more small-scale, under 17 25kw solar development which would be more distributed throughout the Commonwealth and with the appropriate protections, have less of a footprint and impact on other priority land such as forests and agriculture.
6. Keep maximum of 5MW per parcel to protect about ever-increasing acreage of industrial scale solar. There is an increasing push to expand the footprint of large-scale solar

development to make the investment in a project more efficient and cost effective. This can be seen both nationally and in Massachusetts. Given the Massachusetts Technical Potential of Solar findings that the Commonwealth has 15-18 times the needed land for solar development, there is no need to expand the acreage of SMART-subsidized solar projects. Since energy capacity (megawatts) is correlated to acreage, even with assumed future efficiencies, this MW limit should be maintained.

7. Enhance environmental performance Standards:

- a. Stormwater is much more complicated than plugging data into a model – and its easy to manipulate. Downgradient issues have sprung up across the state because of Solar Site stormwater. DEP's Stormwater regulations have created a series of problems by allowing engineers to model panels as "pervious" because the ground under them is open. This sounds good in theory, but the panels change how the water behaves and reduces if not eliminates waters ability to be absorbed in the ground under the panels.
- b. Work should be DISallowed from buffer zones to wetlands. A hard NO. Buffer zones protect and filter wetlands – tree clearing in the buffer allow more sun in and therefore increases water temps. Cutting and grading land within buffer makes wetlands more vulnerable to erosion and sedimentation breaches, and if panels break, there is no buffer to filter out the PFAS or toxins.

8. Energy Storage Systems. Since the SMART program essentially defines how solar development will occur in the Commonwealth, this means that the SMART regulations should incentivize appropriate and safe technologies and prohibit unsafe technologies. It is internationally acknowledged that lithium-ion based energy storage systems catch fire and release toxins into the air and water as a result. While on-site storage is reasonable for solar energy, lithium-ion batteries should be a prohibited technology, with other sources of energy storage being encouraged. If no other energy storage systems are currently commercially viable, **the requirement for on-site energy storage should be removed rather than require unsafe technologies, especially in sensitive areas such as forested and agricultural land.**

- a. Specifically, the regulations - (e) Special Provisions for Energy Storage Systems. Solar Tariff Generation Units co-located with an Energy Storage System - do nothing to address the documented safety concerns associated with lithium-ion energy storage systems.
- b. There are no safety provisions to deal with thermal runaway, battery fires, or contamination of the air and water. Similarly there are no requirements for water access that is need to contain heating of batteries to avoid thermal runaway (see California Public Utility Commission for best practice).
- c. There should also be a requirement for water containment systems since water applied to a lithium-ion battery will be contaminated and air filters or containment systems for toxic fumes resulting from combustion.
- d. There are no liability requirements or liability funds required to cover potential damages to private or municipal water systems, or harms resulting from toxic fumes