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Subject:	SMART program--public comments
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I would like to address the issue of public monetary incentives to encourage the development of large-scale solar arrays on forested land in our state. This policy is short-sighted and ultimately destructive to the very goals of the program—to support safe and responsible power sources that will protect our state from the effects of global warming. Indeed, cutting down large tracts of forest, especially on slopes that will erode, is a dangerous, irresponsible practice that must not be permitted.

First, trees remove large amounts of carbon dioxide from the air. Cutting them down for solar arrays is foolish, as numerous recently published articles demonstrate, since trees combat climate change and improve the quality of life for both humans and wildlife. Just this past July [(July 4, 2019 "Best Way to Fight Climate Change") https://www.apnews.com/8ac33686b64a4fbc991997a72683b1c5] AP journalist Seth Borenstein reported on a recent study published in *Science*(Jean-Francois Bastin et al*." The global tree restoration potential, Science* (*Science*, 2019: 365 (6448): 76 DOI: 10.1126/science.aax0848) that demonstrated that planting trees in an area roughly the size the United States would result in the absorption of nearly 830 billion tons of carbon dioxide, approximately what humans have discarded into our environment in the past 25 years.

The article also states that the benefit of this carbon uptake will come quickly because trees remove more CO2 from the atmosphere when they are younger. As study co-author Thomas Crowther, a climate change ecologist at the Swiss Federal Institute of Technology said, "This is by far—by thousands of times—the cheapest climate change solution" and, according to the article, the "most effective." Trees in our area are not old-growth trees. Those were cut down when farmers first settled here. Our trees The United States is on the list of the six nations with the most room for new trees, along with other large countries such as Canada, Australia, China, and Brazil. Before this research was conducted Crowther thought that other methods of fighting climate change such as cutting emissions and changing eating habits would be more effective, but the study demonstrated that trees are far more effective because they remove so much carbon dioxide from the air.

One might argue, Massachusetts already has a comparatively large number of trees—it is the 8th most forested state in the country; however, it is also the third-most densely populated area, and 75% of those forests are owned by private individuals, not the Commonwealth. Why does this matter so much to us? First, over 40 acres of our state's land go into development every day, and when the "hidden" effects of development are included, including roads and building lots, the human impact was about 78 acres per day. Loss of agricultural land to development occurred especially in the I 495 corridor and in the Connecticut River valley. There is less than ½ acre of forest for each one of the 6.4 million people in Massachusetts; the state imports 98% of its wood needs. Seventy-one percent of

wildlife habitat statewide lacks permanent protection and is in danger of development and subsequent loss of habitat. ["Losing Ground: At What Cost," www.massaudubon.org/losingground]. The Harvard Forest Wildlands and Woodland Initiative reports that between 1990 and 2010 480,000 acres of trees were removed in New England due to residential and commercial development, parcelization and fragmentation of land, declines in state and federal land protection funding, deterioration of iconic trees species from introduced pests and pathogens, and unsustainable forest and farm management.

Yet we need trees now more than ever. Trees not only are efficient removers of carbon dioxide: they also hydrate and cool our land, which allows us to turn down our air conditioners (saving energy), and they help to preserve our clean water. Equally important, trees hold onto our water and protect against soil erosion and damaging floods that can occur when deforestation is allowed on trees slopes. We have seen this in our area in western MA where clear cutting has occurred on hillsides, resulting in extreme flooding in some areas. Global warming has already put us in danger of flooding since warmer temperatures can lead to rain over frozen ground events, often occurring in late winter. Our area saw an example of this when the effects of two storms were compared, both in the same heavily forested area—one in September of 2018 and another in January of 2019: virtually the same amount of water, but water in the first storm was safely conducted down the culverts and into streams that could take the excess flow. Not so with the second storm, which was a rain over frozen ground event. That storm's flooding destroyed roads and culverts, costing thousands of dollars to repair. This is precisely what happens after clear cutting occurs: the rain is no longer able to be absorbed into the ground because the trees are gone, and the ground cover is not robust enough to capture the rain. And of course when fierce storms hit in the summer in deforested areas, the soil erodes, making the next storm even more dangerous.

One other result of deforestation has just come to the public's notice: researchers have discovered that areas of patchy woods no long can support predators such as foxes, hawks, and owls who need large forests to survive; instead, fragmented forests have increased the population of mice, chipmunks, and other small rodents, that carry the ticks that cause Lyme disease. In addition, 80% of the ticks in these fragmented forests were found to be infected with other emerging diseases such as babesiosis, anaplasmosis, and Powassan encephalitis. Research suggests that forests larger than five acres encourage the return of larger predators that can help control populations of mice and other small rodents that carry these diseases, and the tick population drops. Anyone who has ever had Lyme can tell you that we need to do everything in our power to combat its spread.

Cutting down forests to build solar arrays is a self-defeating practice. Yes, we need solar power. But let's cite it responsibly and not allow practices that create many more problems than they solve, problems that then must be faced—and their solutions paid for—by the local residents. Encouraging the development of large-scale solar power on forested land as is currently allowed by the Massachusetts SMART program is NOT in the public's interest. Indeed, it isn't in anyone's interest, except those who stand to gain financially by such practices. The communities lose, the land loses, and the state loses. Massachusetts has some

of the best forests in the northeast. While forests are burning in the west our trees stand as beacons, soaking up carbon, hydrating our air and water, and providing homes for wildlife and residents. Let's support one our greatest assets—not sell them off.

Thank you for the opportunity to address these important issues.

Sincerely,

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