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September 27, 2019

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Massachusetts Department of Energy Resources

Via E-mail

Kaitlin and all,

I am writing regarding the 400 MW Review for the SMART Program. I will restrict my comments to the proposed land use provisions, which in my view are very unreasonable. By severely discouraging development of the most cost effective sites in the state, the proposed changes in the land use provisions will significantly raise the cost impact of solar for rate payers and hinder the Commonwealth's efforts to reach its climate and environmental goals.

I know there is political pressure to address the visual impact of poorly planned and poorly sited projects that have negative visual impacts on neighbors and communities. The real answer to those concerns is in better design guidelines design and appropriate visual buffering of projects, not in effectively prohibiting solar on the vast majority of private property in the state.

Carbon Impacts of Solar vs Trees

An acre of solar offsets the generation of over 200 times as much carbon emissions as is sequestered by an acre of forest. This is very simple to calculate based on statistics made readily accessible by the US Environmental Protection Agency.

There are numerous public policies and laws in Massachusetts intended to address carbon emissions and climate concerns. The proposed land use restrictions on solar severely set back those policy priorities. While there are very many positive attributes and critically important benefits that forests provide for the environment, if we are to be serious about carbon mitigation these numbers cannot be ignored.

Here's the math:

A conservative number to use for the annual production from ground mounted solar in New England is about 1,200 kWh of electricity per kWdc of system capacity. These days with low cost relatively high efficiency panels, you can get about 250 kW per acre of solar, including the shading mitigation area. So a new ground mount solar facility in Massachusetts will generate about 300,000 kWh per acre per year.

According to this EPA carbon equivalent calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>) for comparisons of carbon impacts, 300,000 kWh of electricity generated from one acre of solar would offset the equivalent of carbon sequestered by 250 acres of forest on an annual basis.

Even if the EPA calculator is off by an order of magnitude, that would still be a huge difference.

Forests are clearly important to our environment for all kinds of reasons, and there are definitely some particularly very special areas of forest that certainly should be protected from any type of development. But for anyone who cares sincerely about climate issues, it is important to recognize how very much more efficient solar is in addressing concerns related to carbon emissions.

Solar also helps avoid SO_x, NO_x, methane and other pollutants from fossil fuel generated electricity that trees don't impact, not to mention plutonium, radioactive waste and all the other nasty stuff associated with nuclear power.

Solar Land Use

Back in the Spring of this year, while still working at DOER, Mike Judge indicated in a public forum that at that time, we'd cut about 2,500 acres of forest for solar development in Massachusetts. That's less than four square miles. For comparison, if you look at a map of the state, there is a little tiny bump down into Connecticut that is part of Southwick. That area is about 6.8 square miles. So if located side by side, all the solar built on forest land in Massachusetts as of last Spring would take up just a little over half of the little bump into Connecticut down in Southwick.

The vast majority of Massachusetts forests were cleared for farming and grazing 150 years ago. According to statistics from UMass Amherst, over 60% of the land in the state is forested today. There is a total of 7,838 square miles of land area in Massachusetts not including water bodies. So all of today's solar developed on previously forested land would fit on about 0.05% of the land area of the state. That is an insignificant real impact on forest lands.

The real problem is when solar companies site projects stupidly and aggravate the neighbors. With the high cost of permitting and interconnection, it simply isn't worth developing on sites where you will raise neighbor opposition. Smart developers choose sites carefully on which they can build without aggravating neighbors and walk away from most of the sites they look at. Better siting guidelines and visual buffering requirements will address the real concerns that are causing political opposition to solar.

In closing, I will suggest that for policy makers who really care about carbon and other environmental impacts, careful consideration of the numbers is called for on this issue.

It is also important to apply any proposed changes to the SMART Program fairly for projects that have been in development for years that got caught in the long drawn out interconnection studies and might now be subject to a completely different SMART Program than what was in place when they were started.

Thank you very much for your consideration of these thoughts.

Sincerely



Fred Unger
President, Heartwood Group, Inc.