



HEARTWOOD GROUP, INC.

165 Evergreen Street, Providence, RI 02906

401-861-1650

October 27, 2016

Michael Judge, Director
Renewable and Alternative Energy Division
Massachusetts Department of Energy Resources

Dear Mike,

Thank you for the opportunity to help represent the solar industry in the land use subcommittee. My comments will be limited to land use issues.

I appreciate the thoughtful people on the land use subcommittee, all of whom seem to care deeply about the environment, all who seem to want solar to be successful, and all of whom appear to want to find common ground on mutually agreeable policy. Clearly there are some differences in perspective on priorities. Hopefully we can find common ground.

I want to start by suggesting these are complex issues and it would be unwise to make restrictions too absolute. Some examples from three projects that I was involved with on behalf of Boston Community Capital: One of those projects is built and operating, one in development and one was eventually abandoned due to a combination of interconnection costs, Natural Heritage compliance costs and regulatory uncertainty around net metering. All three are between about 1 and 2 MW. All are on previously disturbed land with large areas stripped of topsoil. Two of them are brownfield sites. All three were taken by the towns for unpaid taxes or acquired by non-profit economic development efforts. Because some portion of each site is wooded, in a priority habitat area or in a zone with protected soils, none of these three unproductive heavily damaged sites would be eligible to participate under the proposed guidelines. Most brownfields and other disturbed sites similarly fall under one of the proposed protection zones or another.

Land Use and Environmental Perspective

According to the New England Forestry Foundation, "In 1880 up to 80% of land across much of New England had been cleared for pasture, tillage, orchards and buildings.....As the 21st century begins, 60% of Massachusetts land is once again forested."

We need to discuss how preserving forests should be balanced with the likely impacts of climate change and pollution on those forests themselves, as well as on society. According to the US Energy Information Administration, 37% of US CO2 emissions come from the electricity generation sector and of that, 28% comes from natural gas plants, the dominant form of power production in New England. Those plants and the derivation of their fuels have other significant environmental impacts as well. Solar provides a real option to avoid fossil fuel plant pollution.

Issues of scale and impact:

One of the most interesting discussions that we started was about the scale of impacts. You indicated that DOER has estimated that to reach 1600 MW of additional solar, about half would be roof mounted and the rest ground mounted, and further estimated that the approximately 800 MW ground mounted solar would require about 4,000 acres of land. You indicated that EEA had reviewed the GIS maps and determined that even if all the land area types in the straw proposal were completely prohibited from participating in the program, that would leave 46,000 acres in the Commonwealth available.

Looking at the GIS overlays, most of that proposed acceptable siting areas appear to be inside the 495 loop and include areas that will be shaded, areas with high land costs that would not be viable for solar development, areas that may not have economically reasonable interconnection access, etc. It seems to me that if EEA's estimate of the available area outside the restricted areas under the proposed restrictions is accurate, there is likely not actually enough available area for economically realistic development of 1600 MW of additional solar projects.

According to Wikipedia, the land area of Massachusetts is 7,800.06 square miles which is 4,992,038 acres. That means the total solar eligible sites are just 0.921% of the land area of the commonwealth. Under the current proposals the other 99+% of land in the state would be ineligible. This raises the interesting political challenge of how that will be explained to the vast majority of towns, organizations and individuals who want to install solar on their properties but can't.

If EEA's estimate of 4,000 acres of solar impact is accurate, that would be 0.08% of the land area of the state or one of every 1,250 acres. We should keep that actually very small scale of impact in perspective relative to historic land use patterns in the state.

The other thing to keep in mind is the energy impact of that solar development. According to the US Energy Information Agency, the average Massachusetts household used 7,224 kWh of electricity last year. The proposed 800 MW of ground mounted solar would produce enough electricity to meet to power 149,500 homes or 6% of the state's households for an entire year. With that 6%, along with the additional 800 MW EEA projects to come from roof mounted solar and the approximately 1600 MW already built or slated for development under the current SREC programs and pollution free solar could be providing almost a quarter of Massachusetts residential electricity needs.

Economics

Often the tradeoff between economics and environmental goals can get lost in these kinds of discussions. We are fortunate to have very thoughtful participants coming from all perspectives around the table that hopefully will be receptive to considering the economic realities of our energy supply choices as well as the environmental impacts. We will need to provide economically reasonable and environmentally responsible electricity supply with Brayton Point, Pilgrim and other large polluting generators shutting down in the next couple years.

When I suggested that hopefully we could all agree that that solar should be no more restricted in land use policy than other type of development, someone suggested that the discussion is not about land use policies, but rather about what kind of lands it is appropriate for the EEA to be subsidizing solar on. The suggestion was made that solar could be built on any other parcel in the state according to the existing land use regulations, it just wouldn't get subsidized to do so.

In my view, the payments being discussed are intended as fair compensation for the environmental and other societal benefits that solar delivers to ratepayers and to the Commonwealth. We all need to recognize absolutely clearly that without that compensation, very little solar will be built.

Subsidies and Public Policy

Government subsidizes all sorts of activities viewed as serving a public purpose. We subsidize automobile use by providing free roads. We subsidize affordable housing communities in order to provide reasonable housing for those who need assistance. We subsidize the construction of schools and provide free education. We subsidize public transportation. We subsidize farming. None of those activities or the many other activities favored by public policy are prohibited from receiving subsidy if constructed on forest land or agricultural lands. Why should solar be treated differently? Doing so distorts and compromises the intentions of policymakers in encouraging the development of solar alternatives to traditional polluting energy resources.

On top of massive direct government subsidies and tax subsidies that they receive, nuclear, coal, oil, and natural gas are unintentionally subsidized further through public policy and lagging economic policy. Coal and gas generators are able to treat the atmosphere as a free waste disposal site. Oil spills along with fracking for gas and oil can pollute streams, rivers and groundwater. Mountain top removal, miner's health and other costs of coal mining are passed off to society to deal with. Liability, waste disposal, terrorist risks and other huge costs of nuclear power are passed on to tax payers. Transmission and other costs that makes Canadian hydro and other distant energy resources viable are passed on to ratepayers effectively subsidizing those non-local resources. Yet it is effectively being suggested that outside a very tiny sliver of the state, pollution free solar should compete with those heavily subsidized traditional energy resources without compensation for the benefits provided.

Soil Protection as The Core Issue

The most interesting and useful perspectives in the discussion last week came from a farm advocate. He alluded to the changing land use patterns in New England cited above and suggested that the core issue is really soil protection. He pointed out that many now forested areas are areas with prime agricultural soils that have been allowed to revert due to the challenging economics of New England agriculture. He pointed out that many farms cover both great agricultural soil as well as rocky soils, ledge and other poor quality land that is unsuitable for agriculture. He suggested how unwise and counterproductive it would be for solar policy to encourage building on good farm land rather than poorer quality wooded lands.

Unlike other forms of development, solar projects are easy to decommission at the end of their useful lives to shift the land to other uses or revert to forest. With appropriate soil protection guidelines in place, they need not have long term impact on the land.

We should also recognize the need of farms to diversify revenues in order to stay viable and that solar can provide that diversity including brief discussion of a possible adder for co-locating solar with agricultural activity like grazing sheep or growing berries. Farming in Massachusetts is a tough business economically. Solar can make the difference between a viable farm and another large parcel sold for development.

Unintended Consequences

Many towns and cities would like to see solar projects generating tax revenues with little cost to the town. Tax and lease revenues from solar projects can help provide public services without raising taxes on local residents. Smaller rural towns in areas completely covered by the proposed protection areas are ones that often would benefit most from solar revenues.

Many large tracts of land are owned by older people whose families owned it for generations. While land rich, they are often cash poor and facing rising expenses. Leases for solar can be a good way to keep the land in their families and afford retirement, providing a good option to selling out. The reality is that in some cases the choice effectively becomes one of a solar project or a new subdivision full of McMansions. It seems to me that we need to keep economic reality and the options facing land owners in perspective while making these decisions.

We should think about whether it is fair to property owners that less than 1% of the land in Massachusetts would be eligible to participate in this program. Some land owners may hear that and be inspired to clear cut their forests just to avoid whatever new land use restrictions and constraints might come next.

We should at least try to avoid unintended consequences in policy making.

Seeds of Compromise and Consensus:

Most in the solar industry would probably be ok with reasonable specific land areas exempted from the next solar compensation program as long as those areas were clearly identified and we are not subject to endless regulatory processes and surprises in designation long after starting development.

Specific examples probably include Article 97 lands, as long as they are clearly delineated and identified as such on the state's GIS mapping system, and archaeological sites listed in the State Register of Historic Places or Inventory of Historic and Archaeological Assets of the Commonwealth.

Responsible solar developers will of course abide by MassDEP and other state land use restrictions and those imposed by towns. Solar projects should be treated similarly to other types of development in those areas. For example:

- a) Currently small areas of wetlands can be filled or crossed if they are replicated.
- b) Currently land can be removed from Chapter 61 for development as long as the landowner pays "roll back" taxes for five years equal to what they would have paid without Chapter 61 benefits along with 5% interest, and the city or town is given the right of first refusal in the case of a sale.
- c) Currently land protected by Natural Heritage restrictions can in some cases be developed if an area acceptable to the Division of Fisheries and Wildlife for comparable protection of the protected species is permanently protected with a Conservation Restriction filed at the Registry of Deeds.

Hopefully we can all agree to clarify that land that was formerly in these restricted categories but which was removed according to existing legal process should be eligible for the new program. It seems unreasonable to permanently restrict solar development on such land when state law and policy clearly anticipates that land can be removed from these categories.

The big issues that we need to find consensus on are the questions of how to treat agricultural and forest lands. The seeds of potential compromise on those key issues appears possible in establishing performance standards on solar projects that would minimize impacts on topography and protect native soils. Some form of third party review of compliance should likely be put in place and solar compensation under the new program withdrawn if projects are not in compliance. The mechanics and enforcement of such a system and the possible roles of DOER staff, DOER consultants, independent civil engineers or other experts need to be clarified after we make an attempt to really nail down agreement on the core concepts.

It should be clear to everyone that developing or evaluating land management standards that will be applied to a wide range of projects and landscapes is really outside DOER's statutory authority. A better option might be to provide additional incentives to projects that meet a higher standard for land management through as guidelines that could be developed later through an open stakeholder process.

Hopefully we can develop an acceptable set of standards everyone can agree to. I would suggest:

- a) For prime agricultural soils: minimize vegetation and soil disturbance through brush-hogging, mowing and spot grading, but disallow generalized grading and wide ranging disturbance of the upper soil horizons and use conservation seed mix or similar to stabilize soils, control erosion and provide habitat value.
- b) For forest land: allow clearing and stump removal, but provide guidelines that minimize disturbance of the upper soil horizons without making appropriate and necessary site work completely impossible.
- c) Compliance could be attested to by the project developer or the civil engineer of record for the project via affidavit submitted to the Program Administrator, similar to what is currently done when filing with MassACA.

Thanks again for the opportunity to be part of these discussions and for considering these suggestions.

Sincerely,



Fred Unger,
President
508-951-7419
unger@hrtwd.com