

# Can Your Land Support A Solar Farm In Massachusetts? LandVest Real Estate Consulting Experts Offer Insight.

## Can Your Land Support A Solar Farm In Massachusetts?

*This entry is brought to you by [Slater Anderson](#) and [Sandy Olney](#) who advise landowners and their advisors on land planning, appraisal, conservation, management, and disposition services through the [Real Estate Consulting Group at LandVest](#).*

As summer winds down, power outages flare up (Irene), and the sun eases into the southern sky, now is a good time to discuss solar energy. As consultants here at LandVest, it is becoming more common to field questions regarding solar as an alternative land use. The traditional subdivision market remains weak, so “highest and best use” considerations for vacant land often now consider solar as an alternative use. So, what’s the deal with solar these days? It’s certainly a greener option for our commodity-strapped planet. Solar has few, if any, needs for water, sewer, road development and produces no noise, traffic, smoke, or effluents. But what makes a good solar site? And what values are being paid for these sites?



Agriculture-compatible solar farm



For the purpose of this blog, the focus is on the basics of solar farms, or ground-mounted solar panels. However, any time you introduce a fast-changing technology with utility regulation and State and Federal incentives, things tend to get complicated. Although not covered here, it’s important to note that smaller roof-mounted installations typically seen on houses and industrial/commercial roof-tops, also known as micro farms, are a growing segment of the market as efficiency improves, costs come down, and “sustainability” gains a greater mainstream presence.

### What makes a good solar site?

The beauty of a ground-mounted solar array is they can sit on challenged sites. Massachusetts has a maximum solar power production cap of 6 megawatts (MW) per site. 1MW will power roughly 1,000 homes if designed efficiently. Typically, a 1MW system requires 5± acres of site area, so a 6MW system installed on 30± acres is considered large – essentially a utility-scale system. Cleared and level sites with southerly exposure are ideal but land with otherwise limited utility is adequate. Slater Anderson and I were recently tasked with developing a highest and best use analysis on one of the finest solar sites in New England – 800 contiguous acres of flat south-facing terrain with limited interior development potential (at one time there was no regulatory solar power cap and the developers envisioned a massive 50MW system). Based on our research with the solar developers, this project had all the key components for a large solar farm but was sidelined based on one factor – distance to adequate transmission lines. In order to carry power to the market, a site’s proximity to a power station or a 3-phase line is critical, not to mention working with the utility company running the lines.

### Some Initial Set-up Basics

Solar farms are expensive with regulatory and engineering hurdles. Treasury grants (30% refund) and tax credits help defray costs and accelerated depreciation (50%) on the system is currently available, but financing quickly enters the picture. Rough estimates start at \$3.5 million for a 1MW system, but other questions need to be answered first. Is there an off-taker for the power – meaning is there demand in the area for cheaper alternative power, and is the local utility company willing to buy it? A solar developer needs an inter-connection agreement with a utility company (National Grid, NStar, etc.) developed through what is known as a Power Purchase Agreement ([PPA](#)). Interestingly, utility companies may not necessarily want to buy cheaper power and essentially view these solar farms as competitors. It’s been said that the higher loads generated by solar can affect the reliability of their lines. However, current mandates require that electricity suppliers serving Massachusetts must acquire a percentage of the power they sell to consumers from renewable sources.

## **Brownfield Sites**

A recent trend in solar farming has been to utilize “brownfield sites”. These sites are a good re-use of land – especially land with environmental problems like capped landfills. Seeing the long-term benefits of a solar installation, municipalities are utilizing these industrial-zoned sites, which often have transmission lines in place, unencumbered ownership, and minimal zoning hurdles. Brownfield sites are also convenient locations for alternative uses simply based on their non-desirable stigma. A recent example of this trend is the newly approved 18-MW solar project on Cape Cod and Martha’s Vineyard, the largest of its type in New England which is expected to power 3,132 homes from an assemblage of brownfield sites (9 sites in six towns). According to comments from the [Cape & Vineyard Cooperative](#), “unlike the controversial 130-turbine offshore Cape Wind farm planned near Cape Cod, this project has won unanimous local support.” A construction date for the \$83-million project has not yet been scheduled. Duxbury is another town close to approving a 2± acre solar array (200-300KW) set on a capped landfill. The site, which abuts the transfer station and has otherwise limited utility, is designed to power town facilities like the police, fire, and transfer stations.

## **Agriculture**

Another recent trend in solar farms has been providing dual uses for fertile farm land by using elevated solar panels. In South Deerfield, Massachusetts, [the farm run by the University of Massachusetts](#) is experimenting with renewable power while also preserving prime agriculture soils and pasture lands. The angled panels are elevated 10 feet above the soil while also providing adequate shade for grazing livestock. With prime agriculture soils at a premium in parts of the state, the elevated solar option provides a compatible land use. This dual use may also be compatible with shade crops.

## **Investment Strategy**

Once past the infrastructure costs and a utility agreement, solar power is a fairly stable asset – the sun shines and the system generates a predictable amount of power. Once a system is on-line and selling power back to the utility company, lenders and owners can tap into additional returns by using what is known as “clean energy credits”. For solar energy they are referred to as SRECs – Solar Renewable Energy Certificates – and are commoditized and traded much like a stock certificate. The buyer of the SREC, say a corporate entity, can claim to have purchased clean renewable energy as a way to satisfy a state imposed requirement. The upside for solar system owners is to recover their investment by selling their SRECs through long-term contracts or on the open market. There are two main markets for renewable energy certificates in the United States – compliance markets and voluntary markets. Compliance markets vary by state (Massachusetts-yes). Based on estimates from market analysts and given the unpredictable equity markets, the alternative energy sector is projected to grow significantly.

## **Leasing**

Another option for land owners, and far less costly, is a ground lease option where an owner leases out the land. Current estimates value leases at \$2,000 per-acre annually based on 25-year terms. So, a 2MW facility on 10 acres would return roughly \$20k per year. Solar facilities are estimated to last a minimum 25 years. However, the infrastructure can be decommissioned at the end of the term; the land can then be restored to its original state; or the system could be upgraded with new technology and a new lease agreement.

## **Prices and Conclusions**

There has been some recent activity for solar-specific land in Southeast Massachusetts. Two parcels, each over 50± acres, have flat and cleared land and are already zoned industrial with good access to power. Both pieces are under contract for \$20,000 to \$35,000 per acre. However, regulatory risk, proximity to power, and efficiency issues make valuations of similar land complicated. Based on the trend of utilizing brownfield sites, buyers may be unwilling to pay a premium when considering development costs. From discussions with industry participants, the key factor is assembling a project development team who can acquire funding and navigate regulations with utility companies and regulators. In Massachusetts, the good news is that the State has very aggressive alternative energy targets (250 MW by 2017) – some of the strongest incentives in the country, but they have only met a small fraction of this goal. Based on what is currently approved and on-line, the State has lots of approvals to hand out to reach this target by 2017.

For more information on solar farming or if you are in

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16-MW solar farm; Davidson County, NC